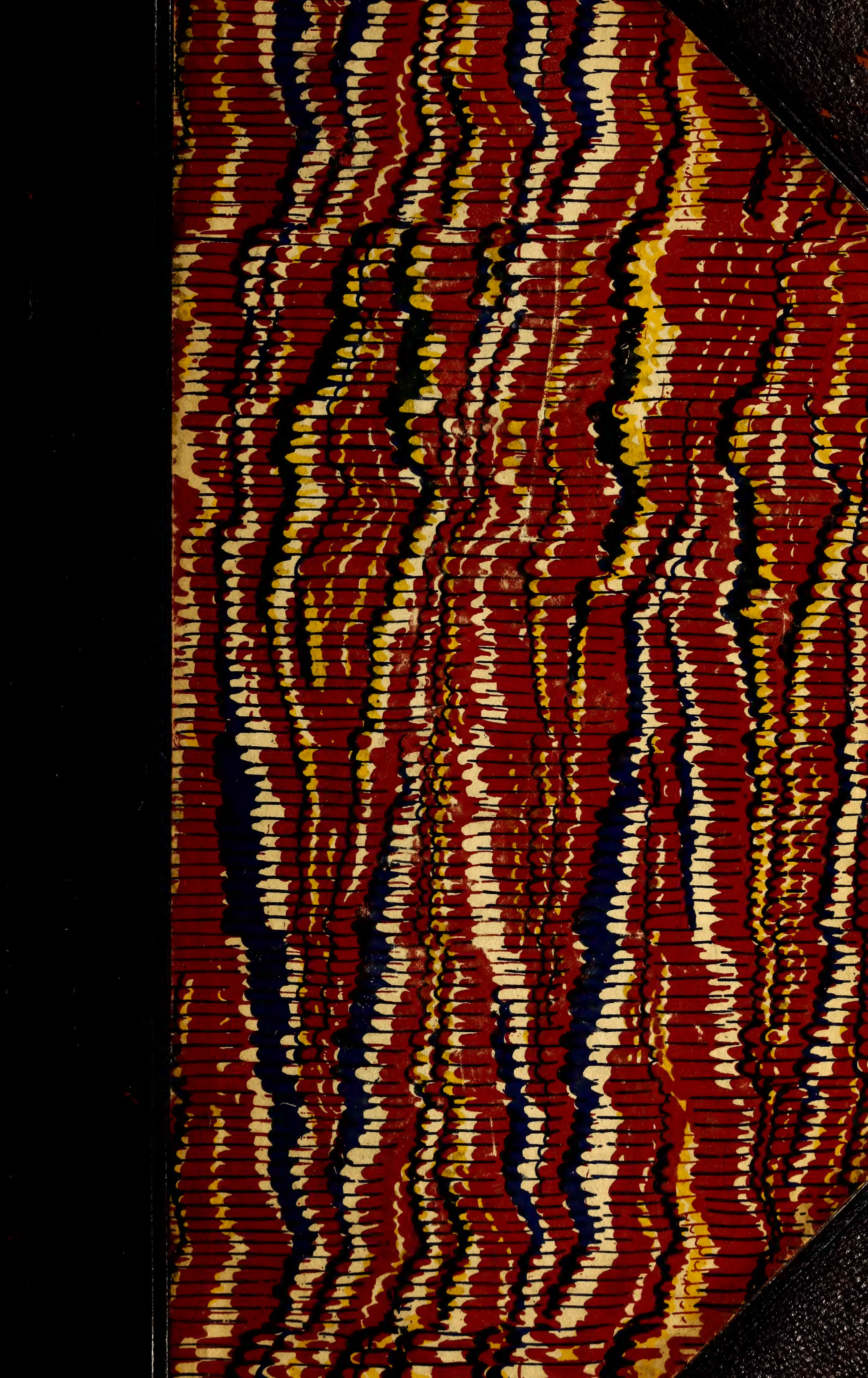
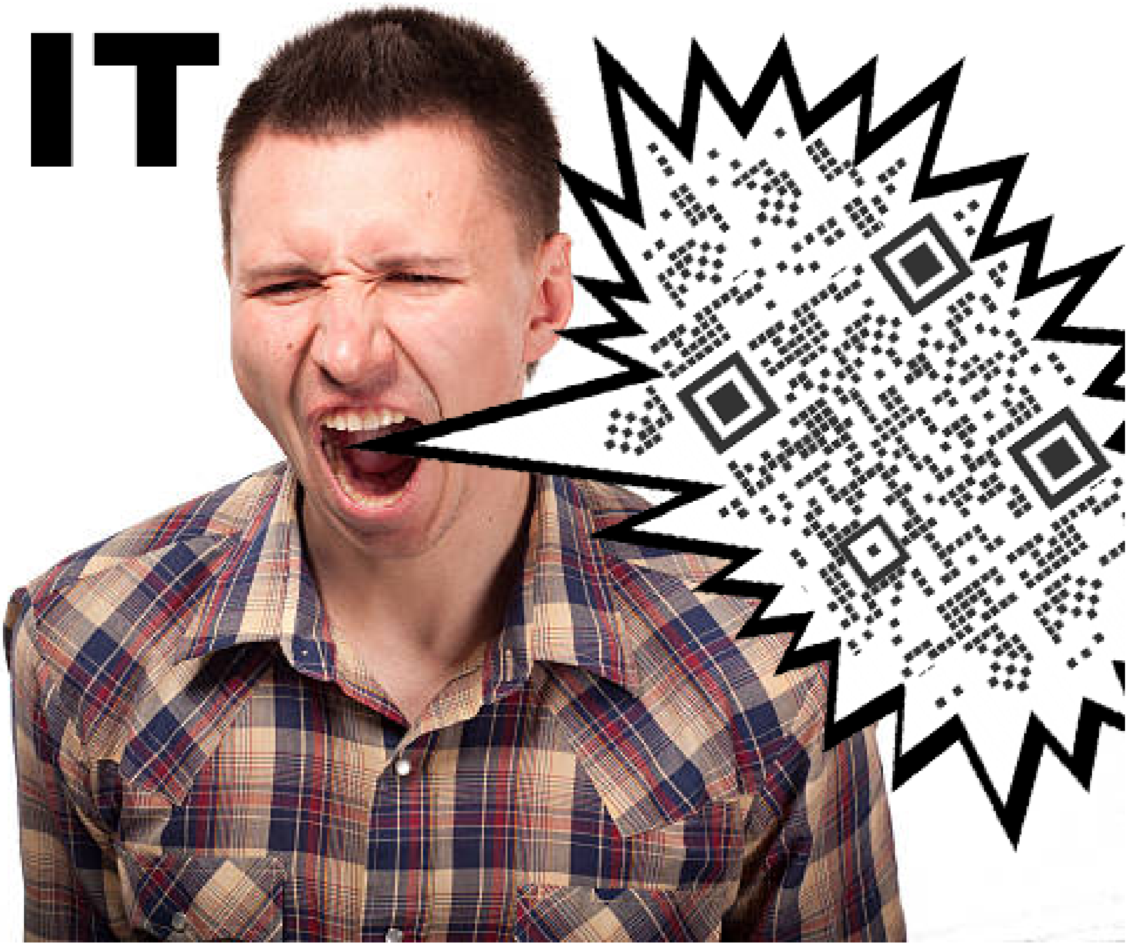


SHOUT
SHARE
IT



121195
Smith

THE
SIERRA CLUB BULLETIN

Volume X
1916 - 1919

Smithsonian Institution
MAY 2 1919
245779
National Museum

THE SIERRA CLUB
SAN FRANCISCO, CALIFORNIA
1919

SIERRA CLUB BULLETIN, VOL. X.

CONTENTS

Author	Title	Page
Badè, William Frederic	*To Higher Sierras*	38
Barrell, Joseph	*Grove Karl Gilbert: An Appreciation*	397
Bradley, Cornelius Beach	*A Reference List to John Muir's Newspaper Articles*	55
	The Junipers of Lake Valley	298
Bryce, James	*A Message and Appreciation*	1
Colby, Wm. E.	*John Muir, President of the Sierra Club*	2
Doran, Jennie Elliott	*A Bibliography of John Muir*	41
Grinnell, Joseph	*The Yosemite Cony—A Chapter in the Natural History of the Yosemite National Park*	159
Hackett, C. Nelson	*Via Deer Creek*	179
Jepson, Willis Linn	*The White Mountains of California*	282
Johnson, Robert Underwood	*John Muir as I Knew Him*	9
Jordan, A. L.	*Knapsacking in the Kings-San Joaquin Region*	292
Jordan, David Starr	*John Muir*	8
Keeler, Charles	*Recollections of John Muir*	16
Kellogg, Charlotte Hoffman	*The Burial of John Muir*	15
Kellogg, Mary Frances	*Muir Lodge: An Appreciation*	60
Le Conte, Joseph N.	*The Sierra Club*	135
	Record of an Early Exploration of Tenaya Cañon	276
Marshall, Robert B.	*John Muir*	23
McAllister, Elliott	*Ten Volumes of Publications (1892 to 1917)*	152
Merriam, C. Hart	*To the Memory of John Muir*	146
	Indian Village and Camp Sites in Yosemite Valley	202
	Grove Karl Gilbert, the Man	391
Mills, Enos	*John Muir*	25
Monroe, Harriet	*An Appreciation*	26
Muir, John	*Studies in the Sierra:*	
	II. Mountain Sculpture, Origin of Yosemite Valleys	62
	III. Ancient Glaciers and Their Pathways	184
	IV. Glacial Denudation	304
	V. Post-Glacial Denudation	414
Mulford, Walter	*The War-Zone Forest of the Kern*	155
Osborn, Henry Fairfield	*John Muir*	29
Parsons, Marion Randall	*John Muir and the Alaska Book*	33
	A Week Around Mount Robson	269
Phoutrides, Aristides E.	*Mountain Climbers*	286
Richardson, D. R.	*Professor Joe*	400
Sargent, Charles Sprague	*John Muir*	37
Storer, Tracy I.	*The Yosemite Cony—A Chapter in the Natural History of the Yosemite National Park*	159
Swarth, Harry S.	*Some Sierran Chipmunks*	401

Author	Title	Page
THOMPSON, GEORGE C.	*The Climb of Dunderberg via Virginia Cañon*	287
TIETJENS, EUNICE	*The Sacred Mountain of China*	165
TREAT, JESSIE MCGILVRAY	*The Kern River Outing of 1916*	170

ORGANIZATION OF THE SIERRA CLUB 78, 210, 319, 429
EDITORIALS 79, 211, 322, 430
REPORTS 82, 215, 326, 435
NOTES AND CORRESPONDENCE 86, 221, 332, 438
NATIONAL PARKS 97, 241, 362, 476
WAR SERVICE RECORD AND LETTERS 320, 450
SIERRA CLUB HONOR ROLL 447
FORESTRY NOTES 115, 253, 373, 483
BOOK REVIEWS 121, 258, 379, 487

LIST OF ILLUSTRATIONS

PLATE PAGE
CXXX. John Muir 1
CXXXI. A Lesson on the Trail from John Muir 4
CXXXII. John Muir in the Big Arroyo Camp, Kern Cañon, 1908 5
CXXXIII. John Muir 8
CXXXIV. John Muir 9
CXXXV. Charles Keeler, John Muir, William Keith, Francis Fisher Browne and John Burroughs 16
CXXXVI. Pencil Sketch of the Pacific Glacier, in Glacier Bay, from John Muir's Alaska Notebooks 17
CXXXVII. Forest of Magnificent Silver Firs 24
CXXXVIII. Young Mountain Hemlock 25
CXXXIX. Pencil Sketch of the Alaska Fiords, from John Muir's Alaska Notebooks 32
CXL. John Muir at Home, September, 1913 33
CXLI. John Muir Among the Pines 40
CXLII. Pencil Sketches of Totems from the Old Stickeen Village, from John Muir's Alaska Notebooks 41
CXLIII. Pencil Sketch of Dease Lake, from John Muir's Alaska Notebooks 48
CXLIV. Pencil Sketch from John Muir's Alaska Notebooks 49
CXLV. Muir Lodge 60
CXLVI. Pencil Sketches of Totems from the New Stickeen Village, from John Muir's Alaska Notebooks 61
CXLVII. The Parsons Memorial Lodge, Tuolumne Meadows 80
CXLVIII. Interior of Parsons Memorial Lodge during Construction 81
Parsons Memorial Lodge, Closed for the Winter 81
CXLIX. Parsons Memorial Lodge during Construction 88
CL. Building Suspension Bridge over Piute Creek near Pavilion Dome 89
Construction Work on John Muir Trail—Trail near Seldon Pass, North of Blaney Meadows 89
CLI. Changes in Crater of Mount Lassen:
June 28, 1914. View across ancient crater from southern rim, showing new crater with escaping steam 96
May 27, 1915. From approximately same position, showing chaotic mass of old lava uplifted and filling the former craters 96
CLII. Destruction of Timber by Mud-Flow from Mt. Lassen 97
CLIII. Along the Route of John Muir Trail:
Seven Gables from Bear Creek 104
Evolution Lake 104
CLIV. Along the Route of John Muir Trail:
Mount Abbott from Mono Pass 105
Colby Meadow 105
CLV. Head of Deer Creek Cañon, Looking toward Middle Fork 135
CLVI. John Muir's First Letter about the Sierra Club 138
CLVII. First Headquarters of the Sierra Club in Yosemite Valley (1898) 142
CLVIII. Le Conte Memorial Lodge 143
Parsons Memorial Lodge 143
CLIX. Timber Line and Adjacent Forest (Foxtail Pine) between East Fork of Kern River and Tyndall Creek 158
CLX. White-Bark Pine, near John Muir Trail, Shepard Creek Cañon 159

Plate		Page
CLXI.	A Cony at the Margin of Its Rock-Slide Home	162
	A Typical Observation-Post of the Cony	162
CLXII.	Tai Shan, the Sacred Mountain of China	166
CLXIII.	A Giant Foxtail Pine on Slope of Red Spur	167
CLXIV.	Little Kern Lake	170
CLXV.	A Rest on the Descent of Sawtooth	171
CLXVI.	Moraine Lake	174
CLXVII.	The Crest of the Sierra, Looking South from Mt. Whitney	175
CLXVIII.	On the John Muir Trail	178
CLXIX.	East Vidette, from the Face of Kearsarge Pinnacles	179
CLXX.	Nine-Lake Basin, at the Head of Big Arroyo	182
CLXXI.	Head of Roaring River Cañon	183
CLXXII.	At the Foot of Kearsarge Pinnacles	189
CLXXIII.	Pothole Lake and University Peak	191
CLXXIV.	Up Big Arroyo, from Rim above Moraine Lake	198
CLXXV.	On the John Muir Trail	199
CLXXVI.	Mount Brewer	206
CLXXVII.	The Kings-Kern Divide and Kearsarge Pinnacles from Mount Gould	207
CLXXVIII.	On the John Muir Trail	214
CLXXIX.	On the John Muir Trail	215
CLXXX.	Suspension Bridge across Middle Fork of Kings River at Simpson Meadows	222
CLXXXI.	The Palisade Group from the South	223
CLXXXII.	Mount Clark	230
CLXXXIII.	Mount McClure and Mount Lyell, from Summit of Florence	231
CLXXXIV.	Lake Chelan	234
CLXXXV.	Hotel Field, Head of Lake Chelan	235
CLXXXVI.	Robson and Tumbling Glacier	269
CLXXXVII.	Emperor Falls and Slope of Robson	272
CLXXXVIII.	North Side of Mount Robson	273
CLXXXIX.	Southwest from Crest of Mount Pam	276
CXC.	Robson and Resplendent from Mount Pam	277
CXCI.	Caribou, Valley of Calumet Creek	280
CXCII.	Looking across Berg Lake	281
CXCIII.	Legends for Figures: Fig. 1	284
CXCIV.	Fig. 2	284
CXCV.	Camp at Young Lake	285
CXCVI.	Camp in Virginia Cañon, below Shepherd Crest	288
CXCVII.	Ragged Peak and Young Lake	289
CXCVIII.	Conness Glacier from the Mountain Summit	292
CXCIX.	Fourth Recess, from the Mono Trail	293
CC.	Young Juniper, Glen Alpine	300
CCI.	Old Juniper, over ten feet at base	304
CCII.	Big Twin Juniper	301
CCIII.	Porcupine, Piute Creek	296
CCIV.	Giant Juniper in Cathedral Cañon, Yosemite National Park	305
CCV.	Peak near Long Lake	297
CCVI.	Unique Tamarack Pine Growth	328
CCVII.	One of the Exquisite Lakes in Ten Lake Basin	329
CCVIII.	Summit of Mount San Jacinto	332
CCIX.	Grove of Palms at Mouth of Andreas Cañon, an Old Indian Camp-Ground	332
CCX.	Spearhead	333
CCXI.	Zion Cañon	336

PLATE PAGE
CCXII. Zion Cañon ... 337
CCXIII. Zion Cañon—The Three Patriarchs ... 340
CCXIV. Zion Cañon—Court of the Patriarchs ... 341
CCXV. Looking up South Fork of San Joaquin River ... 344
CCXVI. Record of U. S. Coast and Geodetic Survey ... 345
CCXVII. A Corner of the Wood Technology Laboratory, Division of Forestry, University of California ... 368
CCXVIII. Remains of the Coast and Geodetic Survey's Observatory ... 369
CCXIX. Record of Ascent of Mount Conness ... 369
CCXX. Grove Karl Gilbert ... 391
CCXXI. Mount Gilbert ... 394
CCXXII. Le Conte Memorial Lodge, December, 1918 ... 395
CCXXIII. Alpine Chipmunk—natural size ... 402
CCXXIV. Sierra Golden-mantled Ground-squirrel Gathering Prune-Pits ... 403
Tahoe Chipmunk on Trunk of Yellow Pine ... 403
CCXXV. Long-Eared Chipmunk ... 406
CCXXVI. Mount Brewer, Kearsarge Pinnacles and Lakes ... 407
CCXXVII. Ten Lake Basin, Yosemite National Park ... 414
CCXXVIII. Ten Lake Basin, Yosemite National Park ... 415
CCXXIX. Junction Pass, John Muir Trail (elevation 13,300 ft.) ... 422
CCXXX. Upper Kern Lake and Tower Rock, Kern River Cañon ... 423
CCXXXI. President Roosevelt at the Base of the Grizzly Giant, Mariposa Grove ... 430
CCXXXII. Rae Lake, Headwaters of South Fork of Kings River ... 431
CCXXXIII. First Lieutenant Robert S. Gillett ... 434
CCXXXIV. Lambert's Old Cabin ... 435
CCXXXV. Mountain Lion Cub ten days old ... 442
Mrs. Sovulewski with one of the mountain lion cubs she raised on a bottle in Yosemite Valley ... 442
CCXXXVI. A Pause above the Wapite ... 443
A Two-Foot Cottonwood Cut by Beavers ... 443
CCXXXVII. Head of Lyell Fork, Tuolumne Meadows, Yosemite National Park. 446
CCXXXVIII. Mount Ritter and Banner Peak from Shadow Lake ... 447
CCXXXIX. Cathedral Peak and Unnamed Lake ... 470
CCXL. German Army Order ... 471
CCXLI. Male Mountain Lion two-thirds grown—eight months old ... 486
CCXLII. Tenaya Peak and Lake Tenaya ... 487

JOHN MUIR MEMORIAL NUMBER

SIERRA CLUB BULLETIN

VOLUME TEN
NUMBER ONE

SAN FRANCISCO
JANUARY
1916

Smithsonian Institution
APR 1 1916
National Museum

PUBLICATIONS OF THE SIERRA CLUB
NUMBER FIFTY-ONE

SIERRA CLUB BULLETIN

FOUNDED 1892

Edited for the Club by
WILLIAM FREDERIC BADÈ

JANUARY, 1916

Vol. X

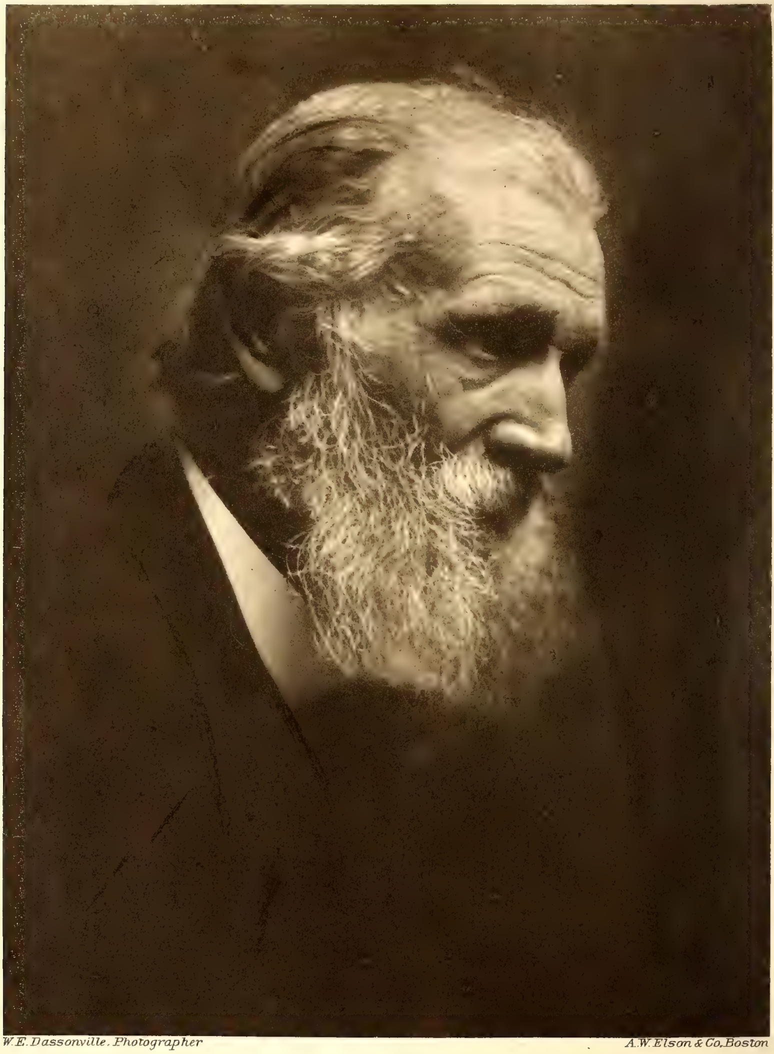
CONTENTS

No. 1

A Message and Appreciation — *James Bryce* 1
John Muir, President of the Sierra Club — *William E. Colby* 2
Plates CXXXI, CXXXII.
John Muir — *David Starr Jordan* 8
Plates CXXXIII, CXXXIV.
John Muir as I Knew Him — *Robert Underwood Johnson* 9
The Burial of John Muir — *Charlotte Hoffman Kellogg* 15
Recollections of John Muir — *Charles Keeler* 16
Plates CXXXV, CXXXVI.
John Muir — *Robert B. Marshall* 23
John Muir — *Enos Mills* 25
Plates CXXXVII, CXXXVIII.
An Appreciation — *Harriet Monroe* 26
John Muir — *Henry Fairfield Osborn* 29
John Muir and the Alaska Book — *Marion Randall Parsons* 33
Plates CXXXIX, CXL.
John Muir — *Charles Sprague Sargent* 37
To Higher Sierras — *William Frederic Badè* 38
Plates CXLI, CXLII.
A Bibliography of John Muir — *Jennie Elliot Doran* 41
Plates CXLIII, CXLIV.
A Reference List to John Muir's Newspaper Articles — *Cornelius Beach Bradley* 55
Muir Lodge—An Appreciation — *Mary Frances Kellogg* 60
Plates CXLV, CXLVI.
Studies in the Sierra: II Mountain Sculpture, Origin of Yosemite Valleys — *John Muir* 62
Organization of the Sierra Club 78
Editorials 79
Plates CXLVII, CXLVIII.
Reports of Committees 82
Notes and Correspondence 86
Plates CXLIX, CL, CLI, CLII.
National Park Notes 97
Plates CLIII, CLIV.
Forestry Notes 115
Book Reviews 121

Correspondence concerning the distribution and sale of the publications of the Club with reference to advertising rates and space location, and concerning its business generally, should be addressed to the Secretary of the Sierra Club, Room 402 Mills Building, San Francisco, California.

Price, 50 Cents Per Copy



W. E. Dassonville, Photographer A. W. Elson & Co. Boston

John Muir

SIERRA CLUB BULLETIN

VOLUME TEN
NUMBER ONE

SAN FRANCISCO
JANUARY
1916

APR 1 1918

A Message and Appreciation

from

James Bryce

To My Friends and Fellow Members of the Sierra Club:

May I venture to express to you the sorrow with which the news of the death of our friend, the venerable John Muir, has filled me? He was the patriarch of American lovers of mountains, one who had not only a passion for the splendours of Nature, but a wonderful power of interpreting her to men. The very air of the granite peaks, the very fragrance of the deep and solemn forest, seem to breathe round us and soothe our sense as we read the descriptions of his lonely wanderings in the Sierras when their majesty was first revealed. California may well honour the service of one who did so much to make known her charms and to shield them from desecration. And you of the Club will cherish the memory of a singularly pure and simple character, who was in his life all that a worshipper of nature ought to be.

February 19th, 1915
Hindleap, Forest Row
Sussex

JOHN MUIR—PRESIDENT OF THE SIERRA CLUB

BY WILLIAM E. COLBY

◆

John Muir was the Sierra Club's first President and held that office for twenty-two years—until his death. The Sierra Club was organized in 1892 largely as a result of the wide-spread interest in California's wonderful mountain playgrounds, which had been aroused by his twenty years of preaching the necessity for their preservation before it should become too late. The Yosemite National Park had just been created as one result of his splendid work. While we could have this great leader of all true mountaineers and lovers of "pure wildness," it was unthinkable that any one else should hold the office of President.

It was my good fortune to be Secretary of the Club for the last fifteen years of this period and I came to know this wonderful man as I have known few others. It is a priceless privilege to be in close contact with a man whose mind was as pure and whose ideals were as high as were John Muir's, and moreover, one who so thoroughly lived up to this ideal purity.

John Muir will never be fully appreciated by those whose minds are filled with money getting and the sordid things of modern every-day life. To such Muir is an enigma—a fanatic —visionary and impractical. There is nothing in common to arouse sympathetic interest. That anyone should spend his whole life in ascertaining the fundamental truths of nature and glory in their discovery with a joy that would put to shame even the religious zealot is to many utterly incomprehensible. That a man should brave the storms and thread the pathless wilderness, exult in the earthquake's violence, rejoice in the icy blasts of the northern glaciers, and that he should do all this alone and unarmed, year in and year out, is a marvel that but few can understand. These solitary explorations were quite in contrast with the usual heavily equipped expeditions which undertake such work. John Muir loved and gloried in this sort of life and approached it with an enthusiasm and power of will that made hardships and those things which most human beings consider essentials, mere trifles by comparison. He was willing to subordinate everything in life to this work which he had set out to do supremely well, and it is little wonder that he attained his goal.

His latter days were so full of the rich experiences of these earlier years of devotion to his chosen work and he looked with such calm and serenity out upon the feverish haste and turmoil of those about him, engaged in making everything within reach "dollarable," that he seemed to be living in a world apart—a world created by his own wonderful spirit and efforts.

To those who thought him impractical and visionary, it is only necessary to point out his early skill as an inventor, which, if continued, would have made him world famous, or to his success as an orchardist, making his friends, the trees, bear as they had never been known to bear before or since. But these activities were chosen mainly because they seemed the duty of the hour and when finished were left for the nobler pursuits that lay nearest his heart.

His true position as a geologist will never be adequately recognized because his writings on his geological studies were so minimized by contrast with that greater field of beautiful literature in which he excelled. But any one who has read his "Studies in the Sierra" (now being reprinted in the SIERRA CLUB BULLETIN), and who realizes that his views on glaciation as bearing on the origin of Yosemite Valley were written at a time when geologists of great eminence were advancing other theories, and had no patience with any glacial theory, will appreciate that John Muir was no ordinary student of the physical laws of nature. I ran across the following extract from a little pamphlet on the Yosemite, published in 1872:

"There is and has been for two years past, living in the Valley, a gentleman of Scottish parentage, by name John Muir, who, Hugh Miller like, is studying the rocks in and around the Valley. He told me that he was trying to read the great book spread out before him. He is by himself pursuing a course of geological studies, and is making careful drawings of the different parts of the gorge. No doubt he is more thoroughly acquainted with this valley than any one else. He has been far up the Sierras where glaciers are now in action, ploughing deep depressions in the mountains. He has made a critical examination of the superincumbent rocks, and already has much material upon which to form a correct theory." *(The Yosemite,* by John Erastus Lester.) (1873.) Prepared for and read before the Rhode Island Historical Society.

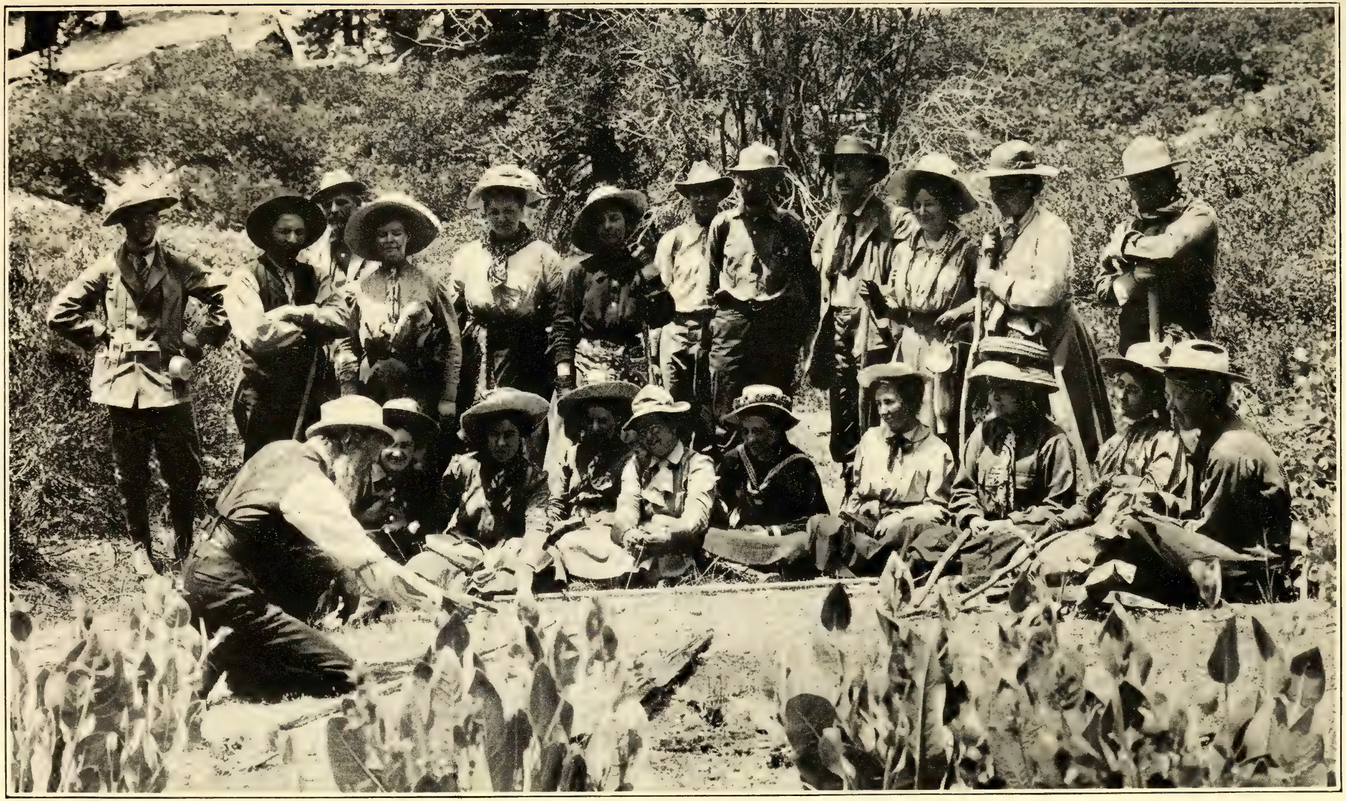
When we bear in mind the fact that at that time Muir had been in the Valley only a little over two years, and that his glacial theory of the origin of the Valley is now quite generally accepted, this prophecy is all the more striking.

John Muir himself can tell more fittingly than I am able to his relation to the Club and, therefore, the following extracts have been selected from some of his letters. From his home near Martinez he wrote under date of January 15, 1907: "I herewith return the draft of a Club report on Kings River region with my hearty approval, excepting the first two pages of the MS., in which the Yosemite and Kings River regions are compared. Every possible aid and encouragement should be given by the Club for the preservation, road and trail building, etc., for the development of the magnificent Kings River region, but unjust one-sided comparisons seeking to build up and glorify one region at the expense of lowering the other is useless work and should be left to real estate agents, promoters, rival hotel and stage owners, etc. Certainly the Club has nothing to do with such stuff, tremendous advantages, wealth and variety of mountain sculpture depending on greater depths and heights, etc., suggest boys with eyes to depth and height of butter and honey, seeing tremendous advantages in one slice of bread over another cut from the same loaf.

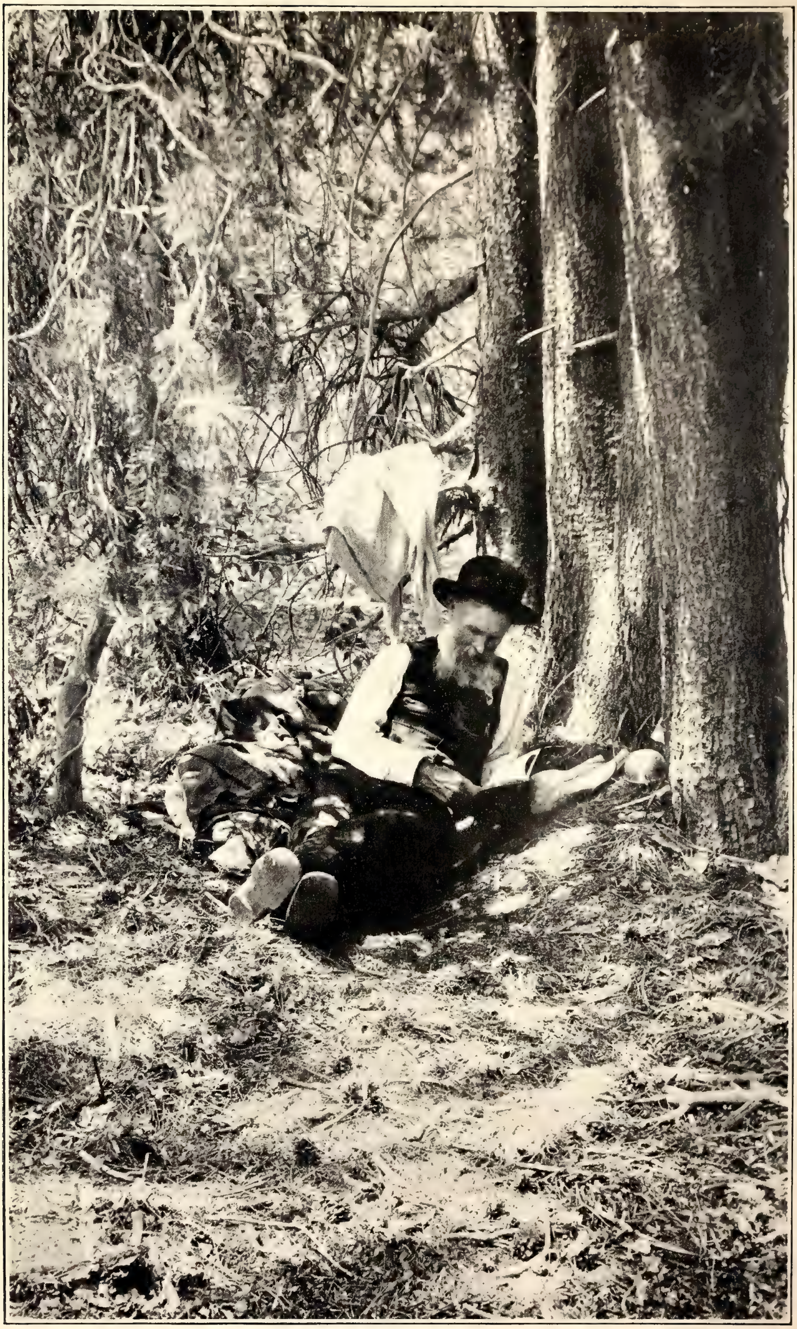
"Have you seen the President's Proclamation of Dec. 8, 1906, creating the 'Petrified Forest National Monument' under the Act of Congress of June 8, 1906? Contains 60,776.02 acres, and includes the Blue Jasper Forest Helen and I found. The large new forest to the north of Adamana is to be added to the above. Come up some Saturday night or Sunday and talk over matters."

Martinez, Jan. 13, 1908: "Of course I heartily approve of the proposed vote of thanks to Mr. Kent, and suggest a slight change in the form of the resolution, as follows:

"'*Resolved:* That the Sierra Club extend a hearty vote of



A LESSON ON THE TRAIL FROM JOHN MUIR
Photo by Geo. R. King



JOHN MUIR IN THE BIG ARROYO CAMP, KERN CANON, 1908
Photo by Walter L. Huber

thanks to Mr. William Kent in testimony of its appreciation of his noble gift to the Federal Government of the Redwood Cañon on Mount Tamalpais, with its magnificent primeval groves of *Sequoia sempervirens,* to be devoted as a public park and pleasure-ground to the people forever.'"

Los Angeles, Cal., Jan. 16, 1911: "Thanks for your kind letter and the book which you forwarded.

"I am now at work on the Kings River yosemites, and I would like to have the part of the Kings River region which ought to be added to the General Grant and Sequoia National parks definitely described, because I wish to recommend the preservation of the region in the Yosemite Guide-book. . . . "

New York City, May 26, 1911: "I have just received a copy of 'My First Summer in the Sierra.' It is dedicated 'To The Sierra Club, Faithful Defender of the People's Playgrounds.' Am stopping with the Harrimans. The above will be my address until the first of July.

"The American Alpine Club is arranging to give me a dinner, at which you may be sure there will be a lot of Hetch Hetchy work. . . . .

"We may lose this particular fight, but truth and right must prevail at last. Anyhow we must be true to ourselves and the Lord."

Castle Rock, Garrisons on Hudson, N. Y., June 27, 1911: "I've just written to Mr. McFarland assuring him of my help in the Niagara fight and my eagerness to meet him. I had not in the least forgotten him or his magnificent work, but since coming here I've had so much Hetch Hetchy and book work to do, besides planning for S. America, and have also been tousled and tumbled hither thither, dinnered, honored, etc., almost out of my wits, I could never set a day to see him. The society weather is now growing calm as the thermometer rises, and I hope to get a quiet week or two to see friends and finish my Yosemite book. . . .

"The American Alpine Club gave me a fine dinner, so did the Appalachian, and a great time at the Yale Commencement, getting honor for helping to save Hetch Hetchy. Glad you like the Sierra Club summer book. I'll get the publishers to send some. Remember me to Mrs. Colby and Parsons and your brave pair of young mountaineers. Good luck for your outing. Greet them all at your camp-fire with my warmest good wishes."

Para, Brazil, Sept. 19, 1911: "I hope you all had a good time this summer, the usual Sierra Club luck. When I left New York August 12th, the Hetch Hetchy looked comparatively safe as far as I could see, but the wicked, whether down or up, are never to be trusted, so we must keep on watching, praying, fighting, overcoming evil with good as we are able.

"I've had a glorious time up the Amazon. In about a week from above date, I hope to be on my way to Rio de Janeiro. Thence I intend going to Buenos Aires, sail up the Uruguay and La Plata, cross the Andes to Valparaiso and southward along the araucarian forests, etc. Then perhaps to South Africa to see its wonderful flora, etc.; may be home in the spring.

"My kindest regards to Mrs. Colby and the great pair of boys and to the Parsons, and all the Club you see."

On the Steamer "Windkirk," near Zanzibar, Feb. 4, 1912: "I've had a great time in South America and South Africa. Indeed it now seems that on this pair of wild, hot continents I've enjoyed the most fruitful year of my life. Some happy California day I'll try to tell you about it. I'm now on my way from Beira to Mombasa after a grand trip to the Zambesi *Baobab* forests, Victoria Falls, and the magnificent glacial rock scenery of Southern Rhodesia. From Mombasa I intend to make a short trip into the Nyanza lake region, then home via Suez, Naples and New York, hoping to find you and all the Sierra Club and its friends and affairs hale and happy and prosperous."

Martinez, May 1, 1912: "I'll be down Friday and stop over for the Saturday meeting. If a few of the Club members wish very much to give me an informal dinner I'll not object, but my dress suit is in Los Angeles; have nothing but old clothes here, therefore the thing must be an informal sort of camp affair."

Hollywood, Cal., June 24, 1912: "I thank you very much for your kind wishes to give me a pleasant Kern River trip, and am very sorry that work has been so unmercifully piled upon me that I find it impossible to escape from it, so I must just stay and work.

"I heartily congratulate you and all your merry mountaineers in the magnificent trip that lies before you. As you know, I have seen something of nearly all the mountain chains in the world, and have experienced their varied climates and attractions of forests and rivers, lakes and meadows, etc. In fact, I have seen a little of all the high places and low places of the continents, but no mountain range seems to me so kind, so beautiful, or so fine in its sculpture as the Sierra Nevada. If you were as free as the winds are, and the light, to choose a camp ground in any part of the globe, I could not direct you to a single place for your outing that, all things considered, is so attractive, so exhilarating and uplifting in every way as just the trip that you are now making. You are far happier than you know. Good luck to you all, and I shall hope to see you all on your return, boys and girls, with the sparkle and exhilaration of the mountains still in your eyes. With love and countless fondly cherished memories, Ever faithfully yours,

John Muir."

"Of course in all your camp-fire preaching and praying you will never forget Hetch Hetchy."

JOHN MUIR · MASTER OF ARTS · HARVARD UNIVERSITY

· JOHANNEM MVIR ·
LOCORVM INCOGNITORVM
EXPLORATOREM INSIGNEM · FLVMINVM
QVI SVNT IN ALASKA
SERRATISQVE MONTIBVS CONGLACIATORVM
STVDIOSVM · DILIGENTEM SILVARVM
ET RERAM AGRESTIVM
FERARAMQVE INDAGATORVM
ARTIVM MAGISTRVM

CAMBRIDGE · MASSACHUSETTS
JUNE 24 · A · D · 1896

CHARLES WILLIAM ELIOT
PRESIDENT

JOHN MUIR

By David Starr Jordan

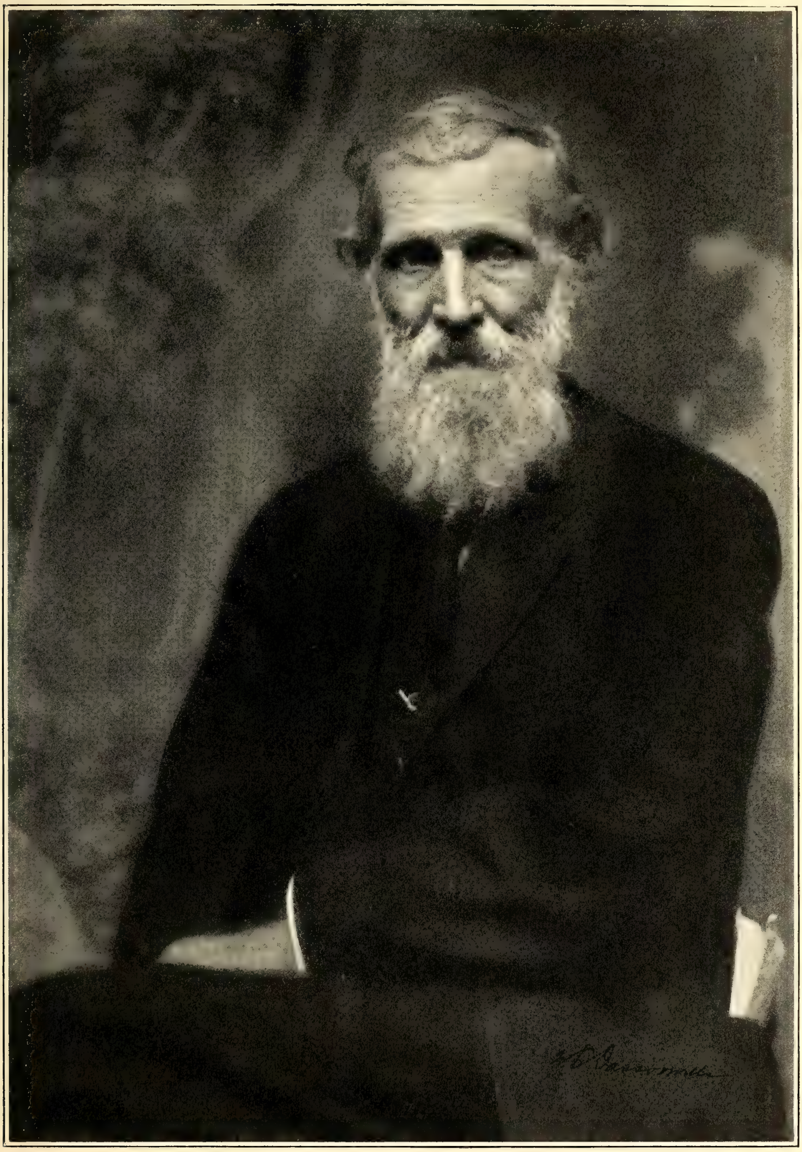
◆

It is not easy to write of my good friend, John Muir. The impression of his personality was so strong on those who knew him that all words seem cheap beside it. Those who never knew him can never, through any word of ours, be brought to realize what they have missed.

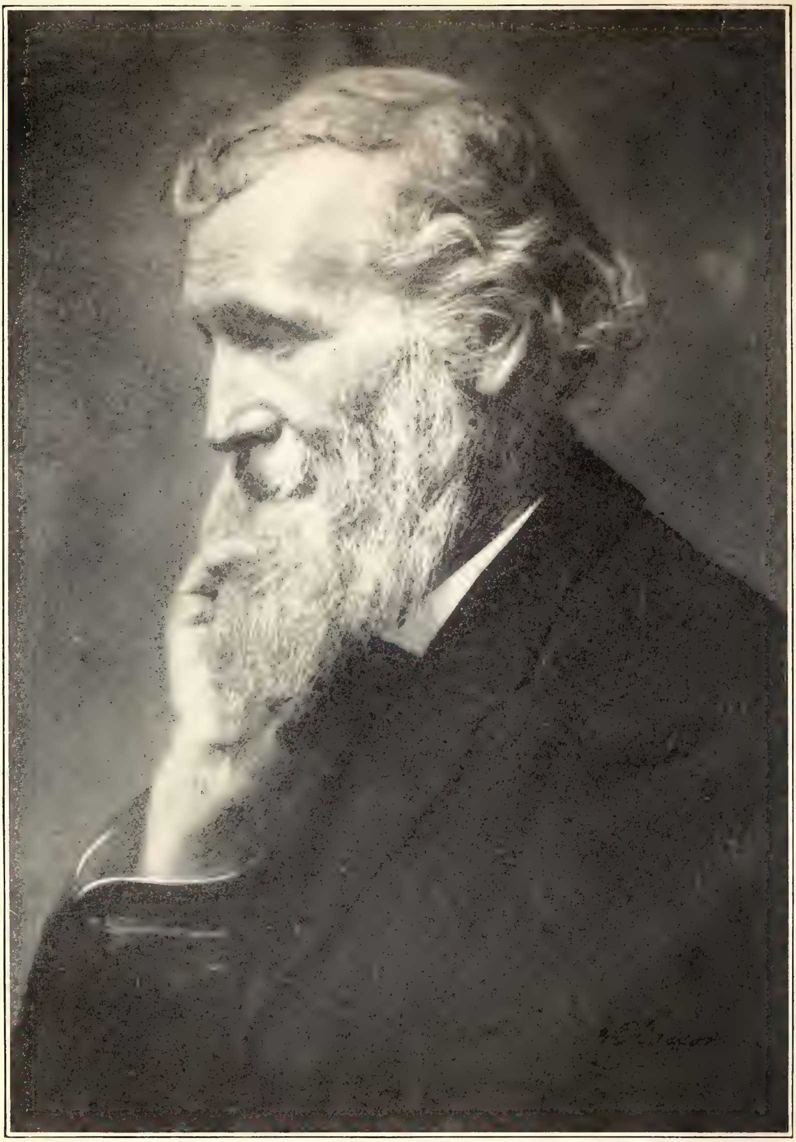
John Muir first came to my notice in Indianapolis, forty years ago, but he was gone before I came there. He was a printer, I believe, in those days, and he made friends, for he was rich in wisdom and in love of nature. Five years later, in San Francisco, I met him frequently. He was lately back from the Yosemite, where, in rollicking enthusiasm, he had written the finest bird biography in existence, the story of the Water Ouzel in the "Ouzel Basin" of the Brewer range.

In those days every meeting with him was a fresh joy. He was possessed with love and the enthusiasm for a fresh great mountain range, almost new to literature in those days, but fit to dominate it when the Alps and the Apennines have vanished, swallowed up in the sea of blood. He had, moreover, a quaint, crisp way of talking, his literary style in fact, and none of the nature lovers, the men who know how to feel in the presence of great things and beautiful, have expressed their craft better than he.

There is another Scotsman of the cosmopolitan order to whom, in many ways, John Muir bore a strong resemblance. John Muir cared little for world-politics, and James Bryce knew little of the songs of birds, but these two great men looked on life and the universe in much the same way, both frank-spoken and absolutely democratic; both open-eyed to all phenomena of the world, whatever and wheresoever they be; both wandering wide from their homes; both large-brained, cosmopolitan citizens of the world, the world God made and which lies open to us all the time.



JOHN MUIR
Photo by W. E. Dassonville



JOHN MUIR
Photo by W. E. Dassonville

JOHN MUIR AS I KNEW HIM*

By Robert Underwood Johnson

Sometime, in the evolution of America, we shall throw off the two shackles that retard our progress as an artistic nation—philistinism and commercialism—and advance with freedom toward the love of beauty as a principle. Then it will not be enough that one shall love merely one kind of beauty, each worker his own art, or that art shall be separated from life as something too precious for use; men will search for beauty as scientists search for truth, knowing that while truth can make one free, it is beauty of some sort, as addressed to the eye, the ear, the mind, or the moral sense, that alone can give permanent happiness. When that apocalyptic day shall come, the world will look back to the time we live in and remember the voice of one crying in the wilderness and bless the name of John Muir. To some, beauty seems but an accident of creation: to Muir it was the very smile of God. He sung the glory of nature like another Psalmist, and, as a true artist, was unashamed of his emotions.

An instance of this is told of him as he stood with an acquaintance at one of the great view-points of the Yosemite Valley, and, filled with wonder and devotion, wept. His companion, more stolid than most, could not understand his feeling, and was so thoughtless as to say so. "Mon," said Muir, with the Scotch dialect into which he often lapsed, "Can ye see unmoved the glory of the Almighty?" "Oh, it's very fine," was the reply, "but I do not wear my heart upon my sleeve." "Ah, my dear mon," said Muir, "in the face of such a scene as this, it's no time to be thinkin' o' where you wear your heart."

No astronomer was ever more devout. The love of nature was his religion, but it was not without a personal God, whom he thought as great in the decoration of a flower as in the launching of a glacier. The old Scotch training persisted through all his studies of causation, and the keynote of his philosophy was intelligent and benevolent design. His wonder grew with his wisdom. Writing for the first time to a young friend, he expressed the hope that she would "find that going to the mountains is going home, and that Christ's Sermon on the Mount is on every mount."

---

* Read, in part, at the meeting of the American Academy of Arts and Letters, in New York, January 6, 1916.

It was late in May, 1889, that I first met him. I had gone to San Francisco to organize the series of papers afterward published in the *Century Magazine* under the title of "The Goldhunters of California," and promptly upon my arrival he came to see me. It was at the Palace Hotel in San Francisco. I was dressing for dinner and was obliged to ask him to come up to my room. He was a long time in doing so and I feared he had lost his way. I can remember, as if it were yesterday, hearing him call down the corridor, "Johnson, Johnson! where are you? I can't get the hang of these artificial cañons," and before he had made any of the conventional greetings or inquiries, he added: "Up in the Sierra, all along the gorges, the glaciers have put up natural sign-posts, and you can't miss your way, but here—there's nothing to tell you where to go."

With all his Scotch wit and his democratic feeling, Muir bore himself with dignity in every company. He readily adjusted himself to any environment. In the High Sierra he was indeed a voice crying in the wilderness: moreover, he looked like John the Baptist as portrayed in bronze by Donatello and others of the Renaissance sculptors—spare of frame, hardy, keen of eye and visage, and on the march eager of movement. It was difficult for an untrained walker to keep up with him as he leaped from rock to rock as surely as a mountain goat, or skimmed the surface of the ground, a trick of easy locomotion learned from the Indians. If he ever became tired nobody knew it, and yet, though he delighted in badinage at the expense of the "tenderfoot," he was as sympathetic as a mother. I remember a scramble we had in the upper Tuolumne Cañon which afforded him great fun at my expense. The detritus of the wall of the gorge lay in a confused mass of rocks, varying in size from a market basket to a dwelling house, the interstices overgrown with a most deceptive shrub, the soft leaves of which concealed its iron trunk and branches. Across such a Dantean formation Muir went with certainty and alertness, while I fell and floundered like a bad swimmer, so that he had to give me many a helpful hand and cheering word, and when at last I was obliged to rest, Muir, before going on for an hour's exploration, sought out for me one of the most beautiful spots I had ever seen, where the rushing river, striking pot-holes in its granite bed, was thrown up into water wheels twenty feet high. When he returned to camp he showered me with little attentions and tucked me into my blankets with the tenderness that he gave to children and animals.

Another Scotch trait was his surface antipathies. He did not hate anything—not even his antagonists, the tree vandals—but spoke of those "misguided worldlings" in terms of pity; yet he had a wholesome contempt for the contemptible. His growl—he never had a bark—was worse than his bite. His pity was often expressed for the blindness of those who through unenlightened selfishness chose the lower utility of nature in place of the higher.

Many have praised the pleasures of solitude—few have known them as Muir knew them, roaming the High Sierra week after week with only bread and tea and sometimes berries for his sustenance, which he would have said were a satisfactory substitute for the "locusts and wild honey" of his prototype. His trips to Alaska were even more solitary and we should say forbidding—but not he, for no weather, no condition of wildness, no absence of animal life could make him lonely. He was a pioneer of nature, but also a pioneer of truth, and he needed no comrade. Many will recall his thrilling adventure on the Muir glacier, told in his story entitled *Stickeen,* named for his companion, the missionary's dog. I heard him tell it a dozen times—how the explorer and the little mongrel were caught on a peninsula of the glacier—and how they escaped. It is one of the finest studies of dogliness in all literature, and told in Muir's whimsical way, betrayed unconsciously the tenderness of his heart. Though never lonely, he was not at all a professional recluse: he loved companions and craved good talk, and was glad to have others with him on his tramps, but it was rare to find congenial friends who cared for the adventures in which he reveled. He was hungry for sympathy and found it in the visitors whom he piloted about and above the Yosemite Valley—Emerson, Sir Joseph Hooker, Torrey, and many others of an older day or of late years, including presidents Roosevelt and Taft.

Muir was clever at story-telling, and put into it both wit and sympathy, never failing to give, as a background, more delightful information about the mountains than a professor of geology would put into a chapter. With his one good eye—for the sight of the other had been impaired in his college days in Wisconsin by the stroke of a needle—he saw every scene, in detail and in mass. This his conversation visualized until his imagination kindled the imagination of his hearer.

Adventures are to the adventurous. Muir, never reckless, was fortunate in seeing nature in many a wonderful mood and aspect. Who that has read them can forget his wonderful descriptions of the windstorm in the Yuba which he outrode in a treetop, or of the avalanche in the Yosemite, or of the spring floods pouring in hundreds of streams over the rim of the Valley? And what unrecorded adventures he must have had as pioneer of peak and glacier in his study of the animal and vegetable life of the Sierra. Did any observer ever come nearer than he to recording the soul of Nature? If "good-will makes intelligence," as Emerson avers, Muir's love of his mountains amounted to divination. What others learned laboriously, he seemed to reach by instinct, and yet he was painstaking in the extreme and jealous of the correctness of both his facts and his conclusions, defending them as a beast defends her young. In the Arctic, in the great forests of Asia, on the Amazon and in Africa at seventy-three, wherever he was, he incurred peril, not for "the game," but for some great emprise of science.

But Muir's public services were not merely scientific and literary. His countrymen owe him gratitude as the pioneer of our system of national parks. Before 1889 we had but one of any importance—the Yellowstone. Out of the fight which he led for the better care of the Yosemite by the State of California grew the demand for the extension of the system. To this many persons and organizations contributed, but Muir's writings and enthusiasm were the chief forces that inspired the movement. All the other torches were lighted from his. His disinterestedness was too obvious not to be recognized even by opponents. To a friend who in 1906 made an inquiry about a mine in California he wrote: "I don't know anything about the X—— mine or any other. Nor do I know any mine owners. All this $ geology is out of my line." It was in his name that the appeal was made for the creation of the Yosemite National Park in 1890, and for six years he was the leader of the movement for the retrocession by California of the Valley reservation, to be merged in the surrounding park, a result which, by the timely aid of Edward H. Harriman, was accomplished in 1905.

In 1896-7, when the Forestry Commission of the National Academy of Sciences, under the chairmanship of Professor Charles S. Sargent, of Harvard, was making investigations to determine what further reservations ought to be made in the form of national parks, Muir accompanied it over much of its route through the far west and the northwest, and gave it his assistance and counsel. March 27, 1899, he wrote: "I've spent most of the winter on forest protection—at least I've done little beside writing about it." From its inception to its lamentable success in December, 1913, he fought every step of the scheme to grant to San Francisco for a water reservoir the famous Hetch Hetchy Valley, part of the Yosemite National Park, which, as I have said, had been created largely through his instrumentality. In the last stages of the campaign his time was almost exclusively occupied with this contest. He opposed the project as unnecessary, as objectionable intrinsically, and as a dangerous precedent, and he was greatly cast down when it became a law. But he was also relieved. Writing to a friend, he said: "I'm glad the fight for the Tuolumne Yosemite is finished. It has lasted twelve years. Some compensating good must surely come from so great a loss. With the New Year comes new work. I am now writing on Alaska. A fine change from faithless politics to crystal ice and snow." It is also to his credit that he first made known to the world the wonder and glory of the Big Trees; those that have been rescued from the saw of the sordid lumbermen owe their salvation primarily to his voice.

Muir's death, on Christmas Eve of 1914, though it occurred at the ripe age of seventy-six and though it closed a life of distinguished achievement, was yet untimely, for his work was by no means finished. For years I had been imploring him to devote himself to the completion of his record. The material for many contemplated volumes exists in his numerous notebooks, and though, I believe, these notes were to a great degree written *in extenso* rather than scrappily, and thus contain much available literary treasure, yet where is the one that could give them the roundness of presentation and the charm of style which are found in Muir's best literary work? One almost hesitates to use the word "great" of one who has just passed away, but I believe that history will give a very high place to the indomitable explorer who discovered the great glacier named for him, and whose life for eleven years in the High Sierra resulted in a body of writing of marked excellence, combining accurate and carefully co-ordinated scientific observation with poetic sensibility and expression. His chief books, *The Mountains of California, Our National Parks* and *The Yosemite,* are both delightful and convincing, and should be made supplemental reading for schools. When he rhapsodizes it is because his subject calls for rhapsody, and not to cover up thinness of texture in his material. He is likely to remain the one historian of the Sierra; he imported into his view the imagination of the poet and the reverence of the worshiper.

Muir was not without wide and affectionate regard in his own state, but California was too near to him to appreciate fully his greatness as a prophet, or the service he did in trying to recall her to the gospel of beauty. She has, however, done him and herself honor in providing for a path in the High Sierra, from the Yosemite to Mount Whitney, to be called the John Muir trail. William Kent, during Muir's life, paid him a rare tribute in giving to the nation a park of redwoods with the understanding that it should be named Muir Woods. But the nation owes him more. His work was not sectional but for the whole people, for he was the real father of the forest reservations of America. The National Government should create from the great wild Sierra forest reserve a national park, to include the Kings River Cañon, to be called by his name. This recognition would be, so to speak, an overt act, the naming of the Muir Glacier being automatic by his very discovery of it. It is most appropriate and fitting that a wild Sierra region should be named for him. There has been but one John Muir.

The best monument to him, however, would be a successful movement, even at this late day, to save the Hetch Hetchy Valley from appropriation for commercial purposes. His death was hastened by his grief at this unbelievable calamity and I should be recreant to his memory if I did not call special attention to his crowning public service in endeavoring to prevent the disaster. The Government owes him penance at his tomb.

In conclusion, John Muir was not a "dreamer", but a practical man, a faithful citizen, a scientific observer, a writer of enduring power, with vision, poetry, courage in a contest, a heart of gold, and a spirit pure and fine.

THE BURIAL OF JOHN MUIR

By Charlotte Hoffman Kellogg

◆

With thee, man-heart, where dawns on glaciers play
  We went; by thy child-heart with joy were fed;
  And by thy poet-heart to prayer were led.
Still following, we cross thy fields today,
Beside the stream, beneath the yew and bay;
  Lower thy body to its chosen bed.
  Quail call—tree-shadows creep toward thy dear head
As in green boughs we wrap thee for alway.

Now holy memories still our questioning—
  Thou know'st not their despair whose reason would
Leap with the spirit the blind brink of Time;
  Here thus to seal eternal brotherhood
With sun and lily, where the foam-bells ring,
  For thee is immortality sublime.

RECOLLECTIONS OF JOHN MUIR

By Charles Keeler

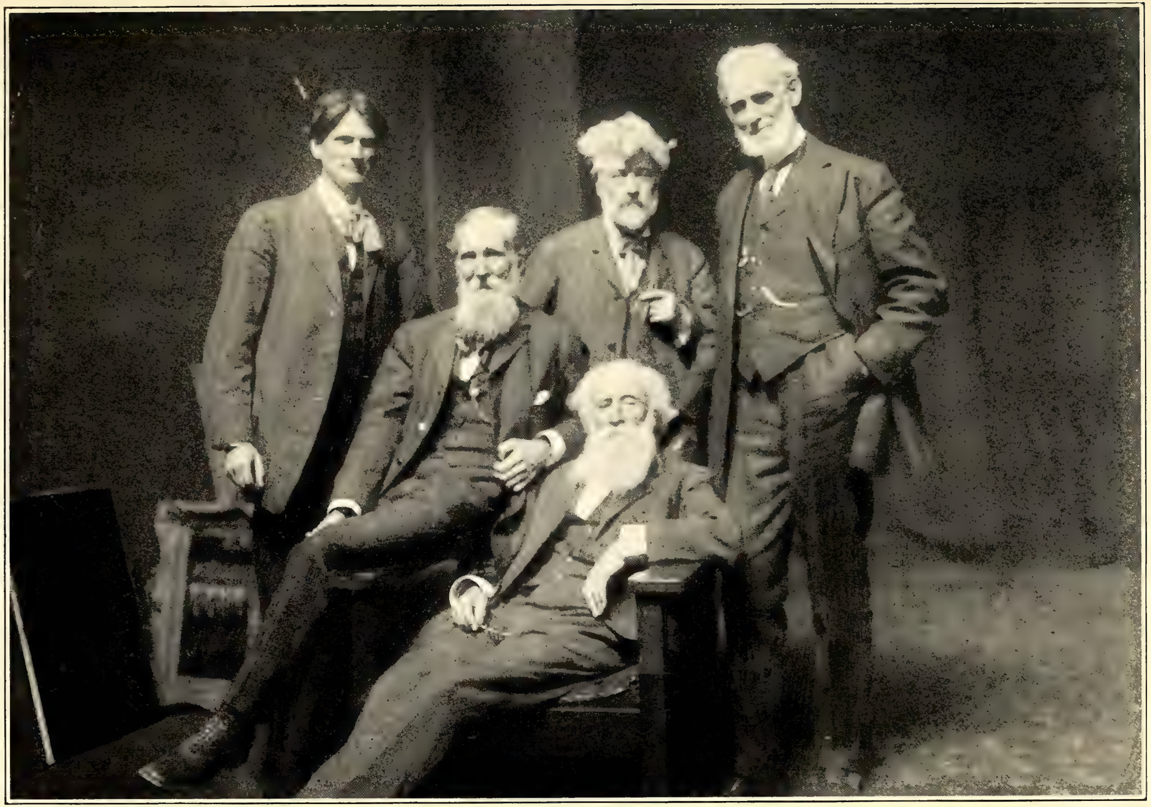
◆

My earliest recollections of John Muir date back some twenty-odd years, to those golden days in William Keith's rather dingy but glorious studio on Montgomery Street, when Muir would drop in from his Martinez retreat for a chat with his old painter friend. The two Scotchmen, who had camped together in Sierra wilds in summer outings, and cracked jokes at one another's expense in the studio or at one of the little French restaurants where they lunched during winter visits, were big elemental natures, both of them. The child-heart each had treasured in his own peculiar way. They were Willie and Johnnie in their bantering sallies.

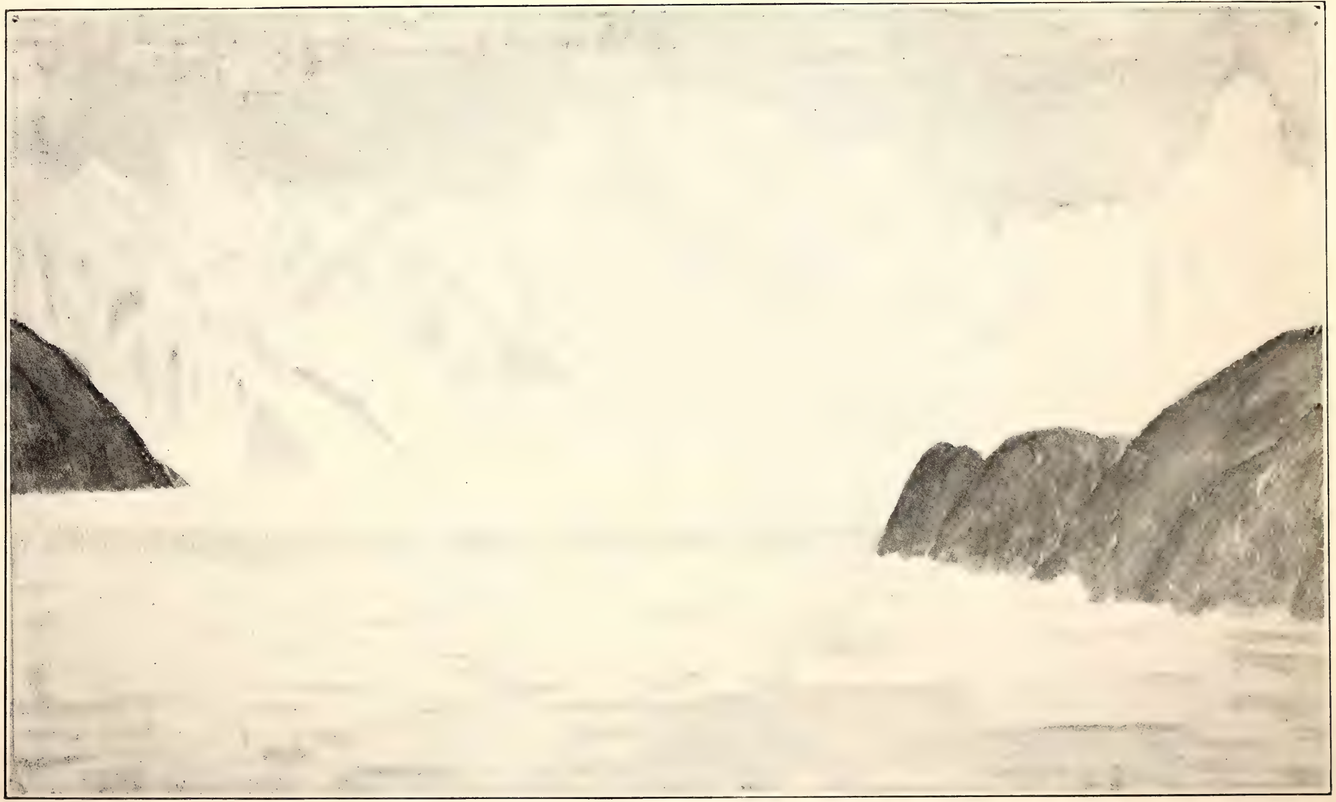
Both were deeply religious natures, but emancipated from formalism and tradition. Both were students and lovers of nature, but where Keith saw color and atmosphere, poetry and romance, in mountain and vale, tree and sky, Muir's eyes were fixed on the ever-changing processes of immutable law.

Those who knew Keith's work best realized that it fell into two groups—a comparatively hard, literal portrayal of the facts of landscape, and a free, impassioned outburst of impressionistic depicting of nature's moods. In his own heart he scorned the former and frankly gloried in the latter. His naturalistic sketches in color were either studies of underlying fact or potboilers for the uninitiated who were not up to his dream rhapsodies.

Muir was at heart a seer. But for him the wonder and glory of nature lay not in its romance of atmosphere and its appeal to human emotions. He saw in it rather the embodiment of divine law, and in a picture looked for a naturalistic portrayal rather than an impressionistic interpretation. So it was that he failed to appreciate his artist friend's finest work. With his dry Scotch humor he loved to twit him in good-natured raillery. Both in the old Montgomery Street studio, and later in the larger Pine Street rooms, I have spent many a happy hour with



CHARLES KEELER, JOHN MUIR, WILLIAM KEITH, FRANCIS FISHER BROWNE
AND JOHN BURROUGHS



PENCIL SKETCH OF THE PACIFIC GLACIER, IN GLACIER BAY, FROM JOHN MUIR'S ALASKA NOTEBOOKS these two great souls, looking at the pictures and listening to Muir's talk.

As his keen gray eye ranged over the pictures stacked in piles all over the place, he would fall upon a big careful objective study of a Sierra landscape.

"Now there's a real picture, Willie," he would exclaim. "Why don't you paint more like that?"

With a look of defiance the big shaggy-haired painter would draw from the stack a mystical dream of live-oaks, with a green and gold sunset sky, and stand it up on an easel with an impatient wave of his hand.

"What are you trying to make of that? You've stood it upside down, haven't you?" Muir would sally with a mischievous twinkle.

And Keith would finally give it up with:

"There's no use trying to show you pictures, Johnnie."

But in spite of these little pleasantries, which revealed a fundamentally different approach to nature, the two men had a life-long admiration and friendship for one another.

Never have I met another man of such singleness of mind in his devotion to nature as Muir. He lived and moved and had his being as a devotee. He was naturally a recluse, but if he could get a listener, whether of high or low degree, he would talk by the hour of his beloved mistress. It was the passion of his life, the awakening of the dull and circumscribed soul of the average man or woman to the ineffable splendor of the great out-of-doors.

During the memorable two months of the Harriman Expedition to Alaska, Muir and I were room-mates. He had the tender kindliness of a father. Of himself he took little heed, but no zealous missionary ever went abroad to spread the gospel with his fervor in communicating a love of nature. And with him a love of nature meant an understanding of her laws. He has told me that he found it necessary, in getting people to listen, to tell them stories such as his immortal tale of Stickeen, but the real hope in his heart was to awaken their interest so they would want to go to nature themselves and to delve into the mysteries of her ways.

Our stateroom was filled with "brush"—pine and spruce boughs, with cones or blossoms, and other trophies gathered on shore rambles. "Look at that little muggins of a fir cone," he would say to me, lovingly stroking the latest accession with which he littered the room, to the despair of the steward who tried to keep it in order.

That other great child-soul of nature, John Burroughs, was with us in Alaska, and the coming together of these two men was an event in American life. Burroughs is naively human, Muir intensely aloof. But Muir's aloofness was never cold or hard. It was the result of his almost fanatical absorption in the thrilling play of nature.

We dubbed him "Ice Chief" in Alaska, because of his enthusiasm for the great ice sculptor of the Glacial Age who had carved out the mountains in their present form. In those far northern wilds he was in his element, for with glaciers thundering their bergs into the inlets and sweeping majestically down through rugged mountain defiles, it was easy for him to show how all the carving of the mountains of the West was the work of their Titan graving tools. He would not hear of earthquake faults as a factor even in the shaping of the Yosemite. It was all the work of the ice, although he had himself witnessed a great avalanche there as the result of an earthquake, and loved to tell about rushing up on the great mass of granite when the blocks were still hot from crashing down the mountain.

To have explored with Muir the great glacier which bears his name, to have wandered with him in the Yosemite and Kings River Cañon, is to have come, through his enthusiasm and vision, a little nearer the hidden mysteries of nature. Every tree and flower, every bird and stone was to him the outward token of an invisible world in process of making. He sauntered over the mountains in his blue jeans overalls, claiming kinship with the rocks and growing things and gathering them all to his heart.

Nor can I forget the simple kindly welcome at his Martinez home, the strolls about his broad acres of fruit and vine, and the evening talks, prolonged far into the night, in his study, littered with the trophies of a life-time of communion with the great out-doors in many lands. In the autumn, boxes of grapes would come to prove that Muir was not so absorbed in his studies as to forget his friends, and on his visits to Berkeley, shining gold pieces would be slipped almost shyly into the children's hands.

Here was a real man, one who would get lost on the city streets, but could find his way through any unmapped wilderness; one who had the outward bearing of an unsophisticated farmer but was at home with the most polished man of the world. Devoid of all shams and affectations, sincere to the very roots of his being, his deadly earnestness was saved by that touch of Scotch humor and that deep tenderness and sympathy which shone through his being despite the habitual absorption in impersonal matters. And that Muir was able to fight, those who know with what zeal and single-minded devotion to a cause he carried on his campaign to save the Hetch Hetchy Valley, can testify. Recluse and devotee of nature though he was, he could come out among men and with unflinching courage, untiring energy and rare practical sense, work to save his beloved trees and mountains from being despoiled.

Others may praise him for his keen eye, his grasp of nature's laws, his enthusiasm as an explorer, his grace and charm of literary style, but for me he was a personality that defies analysis—a great soul, a genuine friend, and I am grateful to share, with all who touched his life closely, in the consciousness that we are better and closer to the great primal things because we knew and loved him.

MUIR OF THE MOUNTAINS

By Alexander McAdie

❧

A scientific friend* recently sent me some measurements of the displacement of earth particles at Ottawa caused by a mountain slide in the Pamir. Seismographs in the Dominion Observatory (and elsewhere) had faithfully recorded the train of earth waves started by the trembling range ten thousand miles away. Moreover it was possible to determine the mass, momentum and energy involved in this fall of a mountain. John Muir would have been interested in these measurements made at a distance, but undoubtedly would have been far more interested in a description of the fall itself, and would have cheerfully started at a moment's notice for Afghanistan or the uttermost part of the earth if assured that another gigantic slide were imminent. Entirely regardless of comfort or personal security he would have watched the mountain fall, exulting in the rare privilege of thus viewing at close range the making and unmaking of the "eternal" hills. We would have had a description, both accurate and eloquent, for he would have written into it not only what the eye beheld, but much that other men must have failed to note, because they failed to feel. His nature was keenly sensitive to the significance of motion in inanimate things. One recalls his story of the earthquake in the Yosemite. "A *noble* earthquake," he cried, as he ran from his tent in the early morning to get a better view of what was happening in the Valley. This was the famous Inyo earthquake of March 26, 1872, about 2:30 a.m., with aftershocks until 6:30 a.m.; and probably the greatest seismic disturbance that has occurred in the United States for two centuries. It was quite severe in the whole Sierra zone, and of course to those who were in the Yosemite at the time was a most terrifying experience. Mr. Muir often described the scene to the writer and fellow members of the Sierra Club. It is plain that after the first two or three seconds of doubt and trepidation, Muir realized what was happening and enthusiastically welcomed such an opportunity for close observation of the swaying trees, and the piling up of the talus by the torrent of rocks from the cliffs, forming a luminous bow as they fell. His intense interest and forgetfulness of self were not assumed, but the natural expression of a spirit all eager to observe and interpret, if he could, the shaking earth and allied phenomena. He was probably the one man in the Valley who kept his head while these unnerving events were in progress.

---

* Dr. Otto Klotz, the Dominion Astronomer.

He had many stirring adventures while climbing and roaming. One in particular was in later years somewhat joculary referred to as "a personally conducted ride on an avalanche," although at the time it was anything but a jocular matter. Here again Muir showed remarkable presence of mind. And how he exulted in the mountain storms! Nothing of their majesty and might escaped his notice. He knew them well, from the towering cumulo-nimbus, whose slow upbuilding foretold the coming thunder, to the wild rush and wrestling of the blast with the forest monarchs. Sprung from a long line of Highland forebears, he scanned with critical eye the gray low-flying scud and the fast falling flakes that blotted out the landscape and bewildered men. To Muir these were never-to-be-forgotten and ever-to-be-enjoyed manifestations of Nature's might and her thousand ways of casting forth her strength.

Or turning from scenes of elemental strife to those of elemental calm, we can picture him keeping lonely vigil on the summit of Whitney. Wandering as night falls, near the crest of the range, the solitary figure looms large against the sky-line. Out of the world, yet in it; no human hand within touching distance, no human habitation within a day's march; serene and self-poised, like one of the prophets of old he strays from men. And as the sun passes below the farther peaks, and darkness broods o'er the vast stretch of earth, he holds communion with the friendly stars, nor knows nor feels his loneliness.

Of all the mountains he had visited, and he had climbed many in all parts of the world, his heart ever turned to and yearned most for the Sierra, or, as he called them, the Mountains of Light. They were his constant inspiration, and all their varying moods he knew and loved. Loitering through the meadows or scaling the heights, Muir was here at home and at his best. Not infrequently he was called upon to act as guide, interpreter and host to those who came from afar. For all such he mixed with the independence of a mountaineer a true Highland hospitality. It was delightful to hear him tell of Emerson's visit, all too brief, or the later, longer outing of an intrepid former president, who insisted on having Muir for his escort and Muir only. Both saw to it that the trivialities of city life were left behind and forgotten. There was no room for artificialities in the friendly mountains. Rather the long day's tramp, the inspiring views, the refreshment of the mountain stream, the growing appetite, the simple meal, the quiet mind, the pine-bough bed and restful sleep beside the camp-fire, that, flickering, threw into bolder relief the sentinel Sequoia.

Muir was the keenest of observers and no mean scientist; but it was his power of expression and gift of interpretation that made him known among men. He was able to convey to others a full measure of his own enthusiasm, and kindle in them an unquenchable longing for out-of-door life, and golden, glorious days and nights in Nature's own playground, the mountains. This was Muir's mission and at it he wrought diligently. His influence was not confined to one city or one State. It is indeed a question if this was not greater in distant lands than in the State and section where he dwelt and which he loved so well.

When a mountain falls and jars the planet's crust, the earth waves spread in all directions with ever widening circles but ever diminishing energy. When a great man passes from the sunlit way, human interest is stirred in many lands, but there is no lessening of appreciation and sympathy with increasing distance. Thus it is with Muir. He stood as a great advocate for the preservation of the wild and the beautiful; he gave the best that was in him to the service of men; he strove earnestly to turn their thoughts from the daily routine, with its unrest and turmoil, to the peace and beauty of the hills.

His eloquent sentences will remain as long as our mother tongue endures; his pleadings will not lose their force, and his influence can but spread and strengthen as the years pass.

JOHN MUIR

By Robert B. Marshall

I have put my brain to the test to find if it could choose words expressive of the grand old man Muir. It does not respond at all fittingly. My appreciation, feelings, respect and love for my friend Muir are all of the heart, and so intense and sacred that I cannot tell them even to my friends. Most of us have suffered the loss of those dear to us, and each one who has so suffered surely appreciates the force of my reluctance in attempting to put down in words my soul's sorrow in the loss of a friend so big, so powerful—and yet he was the plainest and simplest person I ever knew. His simplicity was his power. He knew nature as no one else did, and with his God, he worshipped it. It was so much a part of him that the little children could understand him and knew what he said, and loved him even more than the older children, such as we all became in his presence.

His affection for the commonplace little pine-needle was as genuine as that for the most beautiful flower or the grandest tree, and the little flakes of snow and the little crumbs of granite were each to him real life, and each had a personality worthy of his wonderful mind's attention; and he talked and wrote of them as he did of the ouzel or the Douglas squirrel—made real persons of them, and they talked and lived with him and were a part of his life as is our own flesh and blood.

I knew Mr. Muir long and intimately, and each day I learned something new and beautiful of life and of his wonderful mind. He did not enjoy answering questions, and in fact it was rarely necessary to ask one. Only allow him to be with a person for a short time and some sort of conversation would start; then by sheer force of intellect his mind would take the lead and his companion would drink in the purest of English, charmingly phrased, until soon a sermon of life was given that would remain one of the most wonderful experiences of a lifetime.

I cannot write a line worthy of the man we wish to honor.

One cannot describe Mount Rainier, one cannot describe the Grand Canyon, one cannot describe his beloved Yosemite: humanity is silent in their presence. So it was with John Muir to all who knew him; so has his influence affected mankind, and so will his life and work impress generations to come. This most wonderful of men, lifted above death and time by his human sympathy no less than by his genius, will forever influence the world, and it will be the better for his example and his inspiration.

JOHN MUIR · DOCTOR OF LAWS · UNIVERSITY OF CALIFORNIA

· JOHN MUIR ·
BORN IN SCOTLAND · REARED IN THE
UNIVERSITY OF WISCONSIN · BY FINAL CHOICE
A CALIFORNIAN · WIDELY TRAVELED
OBSERVER OF THE WORLD WE DWELL IN
MAN OF SCIENCE AND OF LETTERS
FRIEND AND PROTECTOR OF NATURE
UNIQUELY GIFTED TO
INTERPRET UNTO OTHER MEN
HER MIND AND WAYS

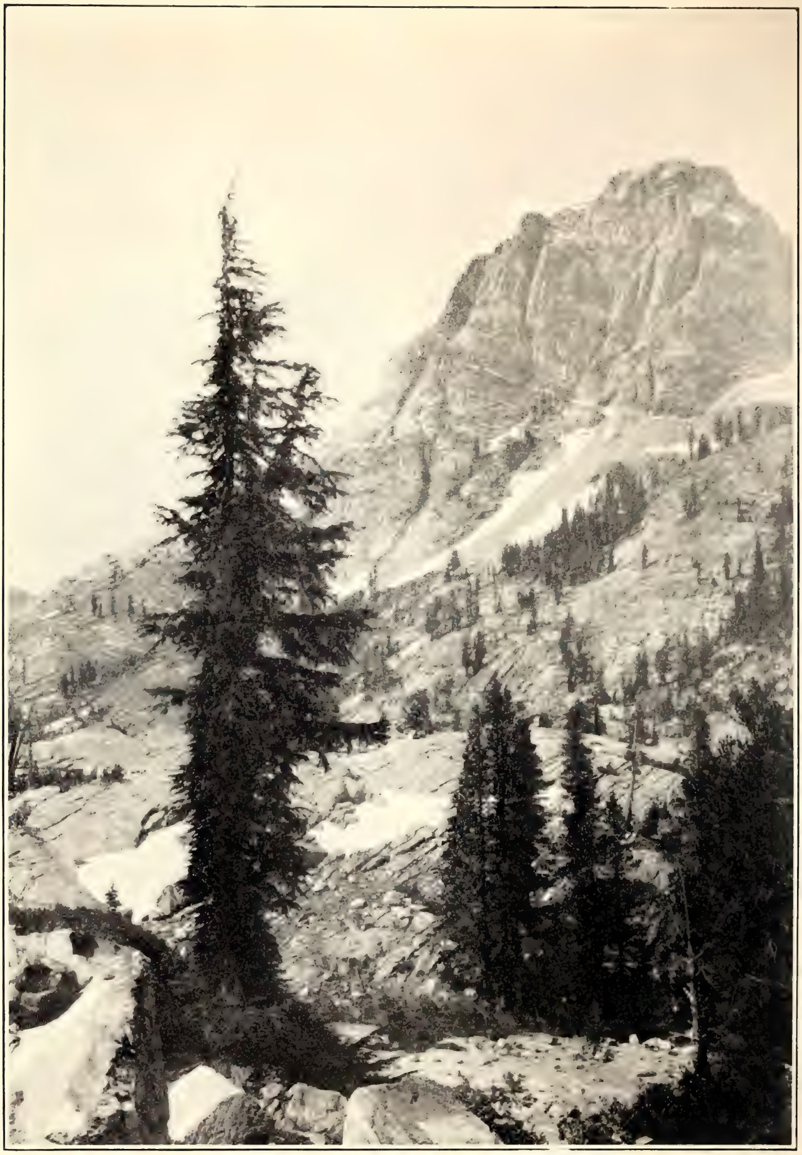
BERKELEY · CALIFORNIA
MAY 14 · A · D · 1913

BENJAMIN IDE WHEELER
PRESIDENT

FOREST OF MAGNIFICENT SILVER FIRS

"Fine sauntering grounds at almost any time of year, but finest in autumn when . . . the flying, whirling seeds, escaping from the ripe cones, mottle the air like flocks of butterflies."—*The Yosemite*

Photo by Geo. R. King



YOUNG MOUNTAIN HEMLOCK

"No other of our alpine conifers as finely veils its strength; poised in thin white sunshine . . . loving the ground, conscious of heaven and joyously receptive of its blessings."—*The Yosemite*

Photo by Herbert W. Gleason

JOHN MUIR

By Enos Mills

In December, 1914, John Muir vanished into that mysterious realm into which all trails inevitably lead. He rendered mankind a vast and heroic service. His triumphs were the very greatest. They were made in times of peace for the eternal cause of peace. We are yet too close to the deeds of this magnificent man to comprehend the helpfulness of his work to humanity. His books and his work are likely to be the most influential force in this century. The twentieth century promises to be for mankind the beautiful century of scenery.

The grandest character in national park history and in nature literature is John Muir. He has written the great drama of the outdoors. On Nature's scenic stage he gave the wild life local habitation and character—did with the wild folk what Shakespeare did with man. He puts the woods in story, and in his story you are in the wilderness. His prose poems illuminate the forest, the storm, and all the fields of life. He has set Pan's melody to words. He sings of sun-tipped peaks and gloomy cañons, flowery fields and wooded wilds. He has immortalized the Big Trees. His memory is destined to be ever with the silent places, with the bird songs, with wild flowers, with the great glaciers, with snowy peaks, with dark forests, with white cascades that leap in glory, with sunlight and shadow, with the splendid national parks, and with every song that Nature sings in the wild gardens of the world.

AN APPRECIATION

By Harriet Monroe

❦

I was fortunate enough to take two Sierra Club outings when John Muir was of the company during the whole four weeks—the first in 1908, through the Kern, and again the next year in the Yosemite. He talked often at the camp-fires, giving generously of his knowledge and love of nature, as everyone knows. But he talked also to smaller groups, and even to any chance companion on the trail, and it is some of these casual hours of happy intercourse which I remember most vividly.

One day, at the Big Arroyo camp, it was butterflies, for some youth was trying to take a picture of one as it poised on a flower. I was struck with the old man's tenderness for these exquisite fairies of the forest, and with the depth and breadth of his knowledge. This was a rare spirit; never had I encountered such delicacy of sympathy with little fluttering, flitting lives. Again, in some high place, it was of a certain species of little bird he talked—I have forgotten their name—a Latin one, for they live incredibly high, beyond the reach of the vulgar tongue—and his voice softened as he described the valor of their daily life.

But it was on two occasions in the Yosemite that John Muir gave me perhaps the richest of my mountain days. And each day took form in a poem, which I shall probably quote on the trail as we pass. One morning we were climbing out of the Valley by way of Vernal and Nevada Falls. I was a poor climber, always the last on the trail, and Nevada, the dancer, held me back with her beauty. When at last I reached the level granite above her, John Muir was there, mounted on the horse which he rode now and then when no woman would accept the loan of it. He was rapt, entranced; he threw up his arm in a grand gesture. "This is the morning of creation," he cried, "the whole thing is beginning now! The mountains are singing together"—ah, I can not remember his dithyrambic pæan of praise, which flowed on as grandly as the great white waters beside us. Four days later I made of it this poem, which offers something of what he said, though his free biblical rhythms feel somewhat cramped in my rhymes, and it was I who dragged the human beings in:

It is creation's morning—
  Freshly the rivers run.
The cliffs, white brows adorning,
  Sing to the shining sun.

The forest, plumed and crested,
  Scales the steep granite wall.
The ranged peaks, glacier-breasted,
  March to the festival.

The mountains dance together,
  Lifting their domed heads high.
The cataract's foamy feather
  Flaunts in the streaming sky.

Somewhere a babe is borning,
  Somewhere a maid is won.
It is creation's morning—
  Now is the world begun.

A few days later we took the "long, long hike," as my diary records it, from Lake Merced to Tuolumne Meadows. Before many hours I met John Muir, who insisted on my riding his horse most of the time; and so it was in his company that I crossed the wet snows and slushy waters of Vogelsang Pass. He introduced me to that lady of the snows, the mountain hemlock, who was just then lifting her head from under the white weight of winter, and spreading her trailing garments in the sun. He told me how she pushed out of the rock and grew, how she bowed to the wind and gently resisted the storm; how she bent under mountain-loads of ice each year, and rose again to the beauty of the sun for a brief summer of joy. He described her moods, revealed her graces—gave me her individuality, her character, until I felt something of his love and intimacy. "You poet, write about that!" he commanded, and so once more—a few days later—I tried to catch the beauty of the moment:

The mountain hemlock droops her lacy branches
  Oh, so tenderly
    In the summer sun!
Yet she has power to baffle avalanches—
  She, rising slenderly
    Where the rivers run.

So pliant yet so powerful! Oh, see her
  Spread alluringly
    Her thin sea-green dress!
Now from white winter's thrall the sun would free her
  To bloom unenduringly
    In his glad caress.

I wonder sometimes if there was ever such another *lover* of nature as John Muir. Never at least for me! He really loved every littlest thing that grows; studied the mole, the beetle, the lily, with complete and perfect sympathy. And for his glorious commanding love nothing was too sublime—not the sequoia, the cataract, the blizzard in the mountains.

JOHN MUIR

By Henry Fairfield Osborn

I believe that John Muir's name is destined to be immortal through his writings on mountains, forests, rivers, meadows, and the sentiment of the animal and plant life they contain. I do not believe anyone else has ever lived with just the same sentiment toward trees and flowers and the works of nature in general as that which John Muir manifested in his life, his conversations and his writings.

In the splendid journey which I had the privilege of taking with him to Alaska in 1896 I first became aware of his passionate love of nature in all its forms and his reverence for it as the direct handiwork of the Creator. He retained from his early religious training under his father this belief, which is so strongly expressed in the Old Testament, that all the works of nature are directly the work of God. In this sense I have never known anyone whose nature philosophy was more thoroughly theistic; at the same time he was a thorough-going evolutionist, and always delighted in my own evolutionary studies which I described to him from time to time in the course of our journeyings and conversations.

It was in Alaska that he quoted the lines from Goethe's *Wilhelm Meister* which inspired all his travels:

> Keep not standing fixed and rooted,
>   Briskly venture, briskly roam;
> Head and hand, where 'er thou foot it,
>   And stout heart are still at home.
> In each land the sun doth visit,
>   We are gay what 'er betide,
> To give room for wandering is it
>   That the world was made so wide.

Another sentiment of his regarding trees and flowers always impressed me: that was his attributing to them a personality, an individuality such as we associate with certain human beings and animals, but rarely with plants. To him a tree was something not only to be loved, but to be respected and revered. I well remember his intense indignation over the proposal by his friend Charles S. Sargent to substitute the name *Magnolia foetida* for *Magnolia grandiflora* on the grounds of priority. He quoted Sargent as saying, "After all, 'what's in a name?'" and himself as replying, "There is everything in the name; why inflict upon a beautiful and defenceless plant for all time the stigma of such a name as *Magnolia foetida?* You yourself would not like to have your own name changed from Charles S. Sargent to 'the malodorous Sargent.'"

John Muir's incomparable literary style did not come to him easily, but as the result of the most intense effort. I observed his methods of writing in connection with two of his books upon which he was engaged during the years 1911 and 1912. He came to our home on the Hudson in June, 1911, after the Yale Commencement, where he had received the degree of LL.D. on June 21. He brought with him his new silken hood, in which he said he had looked very grand in the Commencement parade. On Friday, June 21, he was established in Woodsome Lodge,* a log cabin on a secluded mountain height, to complete his volume on the Yosemite. Daily he rose at 4:30 o'clock, and after a simple cup of coffee labored incessantly on his two books, *The Yosemite* and *Boyhood and Youth.* It was very interesting to watch how difficult it was for him. In my diary of the time I find the following notes: "Knowing his beautiful and easy style it is very interesting to learn how difficult it is for him; he groans over his labors, he writes and rewrites and interpolates. He loves the simplest English language and admires most of all Carlyle, Emerson and Thoreau. He is a very firm believer in Thoreau and starts my reading deeply of this author. He also loves his Bible and is constantly quoting it, as well as Milton and Burns. In his attitude toward nature, as well as in his special gifts and abilities, Muir shares many qualities with Thoreau. First among these is his mechanical ability, his fondness for the handling of tools; second, his close identification with nature; third, his interpretation of the religious spirit of nature; fourth, his happiness in solitude with nature; fifth, his lack of sympathy with crowds of people; sixth, his intense love of animals." Thoreau's quiet residence at Walden is to be contrasted with Muir's world-wide journeyings from Scotland to Wisconsin; his penniless journey down the Mississippi to Louisiana, Florida, across Panama and northward into California in its early grandeur; his establishment of the sawmill, showing again his mechanical ability, as a means of livelihood in the Yosemite; his climbs in the High Sierra and discovery of still living glaciers; his eagerness to see the largest glaciers of Alaska and his several journeys and sojourns there; his wandering all over the great western and eastern forests of the United States; his visits to special forests in Europe; his world tour, without preconceived plan, including the wondrous forests of Africa, Australia, New Zealand and Asia. Finally, his very last great journey.

---

* The name is now changed to John Muir Lodge.

When starting out on this South American journey, from which I among other friends tried to dissuade him, he often quoted the phrase, "I never turn back." Although he greatly desired to have a comrade on this journey, and often urged me to accompany him, he finally was compelled to start out alone, quoting Milton: "I have chosen the lonely way."

On July 26 I said good-bye to this very dear friend, leaving him to work on his books and prepare for the long journey to South America, especially to see the forests of *Araucaria.* I know that at this time he had little intention of going on to Africa. It was impulse which led him from the east coast of South America to take a long northward journey in order to catch a steamer for the Cape of Good Hope.

He remained at Garrison for more than two months, writing his *Boyhood and Youth* and his *Yosemite,* and I have just decided to erect a tablet at the log cabin where this work was done and to name the cabin John Muir Lodge.

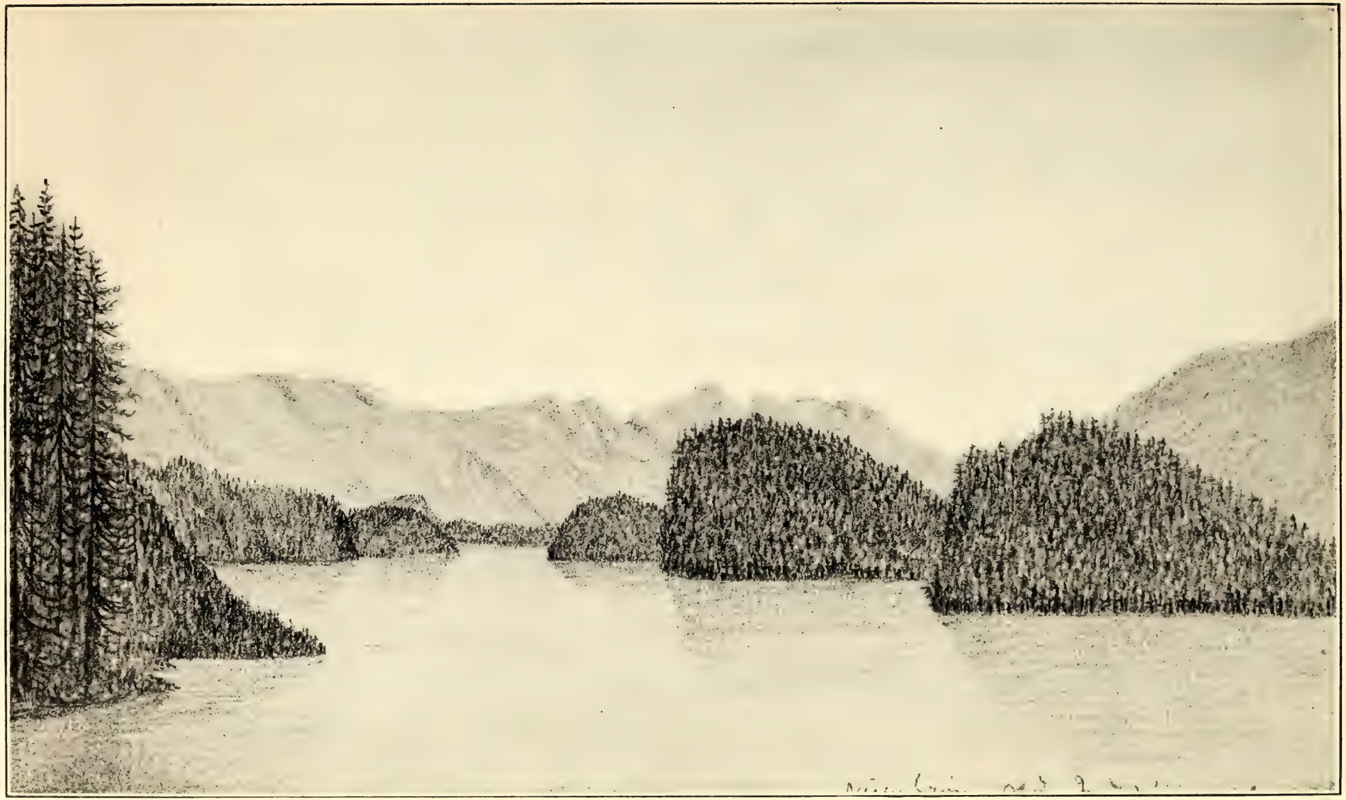
Among the personal characteristics which stand out like crystal in the minds and hearts of his friends were his hatred of shams and his scorn of the conventions of life, his boldness and fearlessness of attack, well illustrated in his assault on the despoilers of the Hetch Hetchy Valley of the Yosemite, whom he loved to characterize as "thieves and robbers." It was a great privilege to be associated with him in this campaign. But certainly his chief characteristic was his intimate converse with nature and passionate love of its beauties; also I believe his marvelous insight into the creative powers of nature, closely interwoven with his deep religious sentiments and beliefs.

There were published in the *New York Evening Mail* some verses by Charles L. Edson with which I would close this all too brief tribute:

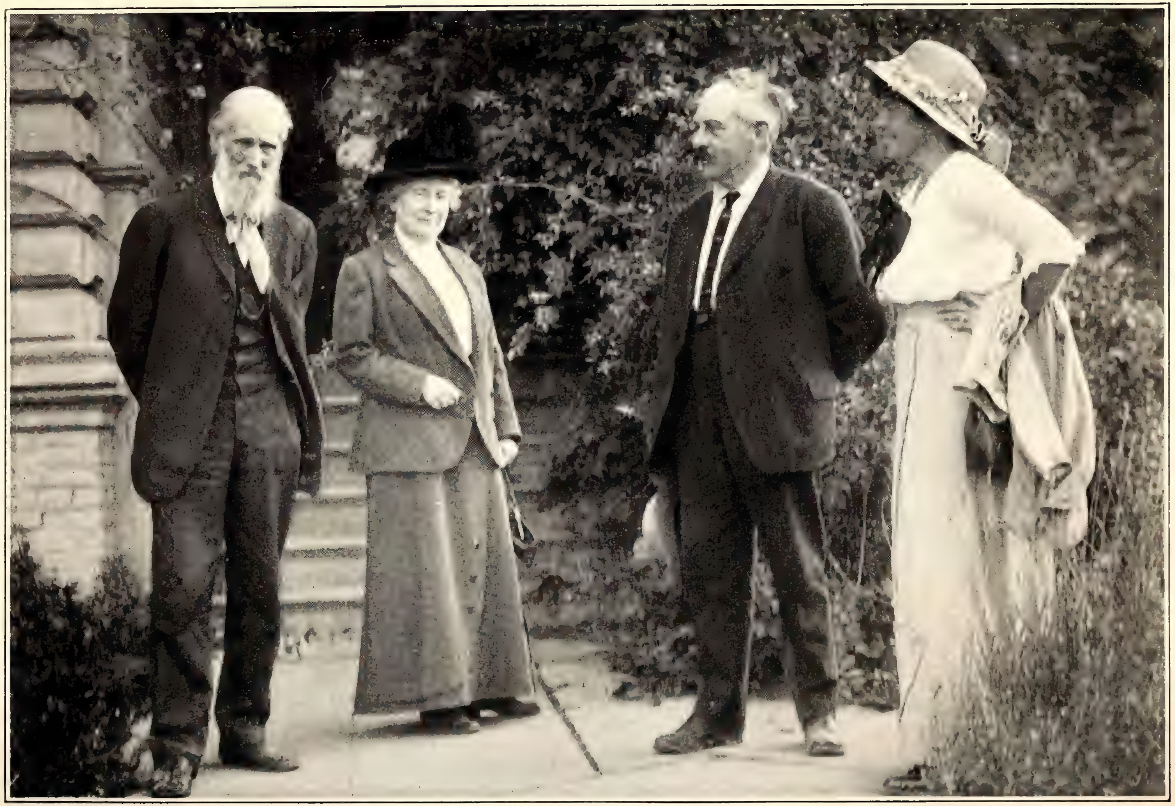
John o' the mountains, wonderful John,
Is past the summit and traveling on;
The turn of the trail on the mountain side,
A smile and "Hail!" where the glaciers slide,
A streak of red where the condors ride,
And John is over the Great Divide.

John o' the mountains camps today
On a level spot by the Milky Way;
And God is telling him how He rolled
The smoking earth from the iron mold,
And hammered the mountains till they were cold,
And planted the Redwood trees of old.

And John o' the mountains says: "I knew,
And I wanted to grapple the hand o' you;
And now we're sure to be friends and chums
And camp together till chaos comes."



PENCIL SKETCH OF THE ALASKA FIORDS FROM JOHN MUIR'S ALASKA NOTEBOOKS



JOHN MUIR AT HOME, SEPTEMBER, 1913
John Muir, Mrs. Herbert W. Gleason, Edward T. Parsons, Mrs. E. T. Parsons
Photo by Herbert W. Gleason

JOHN MUIR AND THE ALASKA BOOK

By Marion Randall Parsons

In November, 1912, not long after his return from his last long journey across South America and Africa, Mr. Muir came to Berkeley to begin work on his Alaska notes. For a month he worked at my home with a stenographer, getting an exact transcription of the journals. The travel-worn, weather-stained little books carried on those memorable exploring trips of nearly forty years before were crammed with sketches and voluminous notes, jotted down perhaps in the canoe, or around the camp-fire, but oftenest in the solitudes of the great glaciers in whose study he cheerfully underwent so much cold and hunger and hardship.

It was most amusing to watch Mr. Muir at work. His intense interest in his subject led him to make many a long digression as his notes brought this or that incident to mind. Time meant nothing to him. Household machinery might stop, food grow cold on the table, and the business members of the family miss their morning trains while Mr. Muir pursued the tranquil course of his subject to the end. And so for an hour or more he might discourse while the stenographer sat with her hands folded. Her stolidity and indifference exasperated him beyond measure. To have no curiosity about the "terrestrial manifestations of God," above all to have no interest in glaciers, was to him both incomprehensible and sinful.

Once started on a task Mr. Muir was a tireless worker. The book in hand might have lain fallow for thirty years, but when it began to take form and substance he was all afire with eagerness to see it finished. Long evenings he spent poring over the notebooks or drawing from them the texts of the monologues he delighted in. His mind, indeed, dwelt with such complete absorption on his work that his conversation nearly always indicated its trend. His speech had all the beauty of phrase, the force and vigor of style of his written word, but with an added spell of fire and enthusiasm and glowing vitality that made it an inspiration and never-ending delight. Many a page of this Alaska book is for me a living record of our fireside hours of companionship.

Not until many months later, however, did I have any close acquaintance with *Travels in Alaska.* After working on it only a short time, Mr. Muir laid the book aside to take an active part in the fight for Hetch Hetchy. A few weeks after the final defeat a severe illness, from whose effects he never fully recovered, again interrupted the book. In his weakened condition the mere sifting out of the enormous mass of material was a task almost beyond his strength. Finding him one day utterly discouraged over it, I offered to go to him a day or two each week to help him until he could find the secretary to his mind. The arrangement proved unexpectedly happy and congenial to us both, and lasted until within a week of his death.

No one unacquainted with Mr. Muir's habits of work and living could appreciate the difficulty, nor, indeed, the humorous nature of the task. He was living alone in the dismantled old home, unused save for his study and sleeping porch. He went to his daughter's home for his meals, but neither she nor anyone else was allowed to touch the study, overflowing as it was with books and papers. Confusion was no word for the state of the manuscripts. He had been collecting material for over thirty years. In the interval that had elapsed since he began real work on it the two typewritten copies of the journals had become mixed, and in some cases both had been revised. Material from certain parts of the journals, moreover, had been used in newspaper letters and again in magazine articles, so as many as five different versions of some passages were in existence. Even had they been collected together and in order, to read and compare and reject would have been sufficiently hard, but fresh versions were constantly coming to light, or in my absence Mr. Muir would unearth a copy of some version already disposed of. He was in the habit of making notes on anything that came to hand—an opened envelope, a paper bag, the margin of a newspaper. No scrap of manuscript could ever be destroyed, and I could devise no system of putting the rejected material aside that served to keep him from "discovering" it at some later date. Finally I took to hiding copied and rejected sheets alike inside a great roll of papers conspicuously tied with red ribbons and labeled in huge capitals "Copied!" and little by little the orange-box full of manuscript and the piles of scattered notes littering desk and table were reduced to a single working copy.

By seven o'clock each morning Mr. Muir had breakfasted and was ready for the day's work, usually lasting, with but the interruption of an hour at lunch and dinner and another at mail time, until ten at night. Composition was always slow and laborious for him. "This business of writing books," he would often say, "is a long, tiresome, endless job." To read his easy, flowing, forceful sentences, as rich in imagery and simple in diction as Bible English, no one would dream what infinite pains had been taken in their creation. Each sentence, each phrase, each word, underwent his critical scrutiny, not once but twenty times before he was satisfied to let it stand. His rare critical faculty was unimpaired to the end. So too was the freshness and vigor of his whole outlook on life. No trace of pessimism or despondency, even in the defeat of his most deeply cherished hopes, ever darkened his beautiful philosophy, and only in the intense physical fatigue brought on by his long working hours was there any hint of failing powers.

Mr. Muir himself, however, seemed to know that the end was near. Very touching were his attempts to rehabilitate the old house, whose forlorn emptiness and desolation were never allowed to weigh upon his own serene spirit, to put it in readiness for whomsoever should next live there. During the latter months of his life he often expressed the conviction that he would never live to write another book. His plan had long been to have his books tell the story of his life and travels, and in the early days of our work together he would often speak of the volumes of this wanderer's autobiography that he hoped yet to complete. But he was curiously untroubled about leaving his work unfinished. To a most unusual degree he seemed to feel that his had been a glorious life, wholly worth while. "Oh, I have had a *bully* life!" he said once. "I have done what I set out to do." And again: "To get these glorious works of God into yourself—that's the great thing; not to write about them." That nature's beauty had a deep and lasting influence on character was one of his most earnest beliefs. No impassable gulf between things material and spiritual ever existed for him, and scientific study only served to deepen his natural reverence and faith. Throughout this book, as through all the others, rings his triumphant belief in the harmony and unity of our universe, its imperishable beauty, its divine conception, "reflecting the plans of God."

It was a rare privilege to work with him day by day, a man of the most original thought, of the very highest ideals, of simplicity and truth and kindliness unsurpassed. He gave of his best in conversation. His genial, whimsical humor, his acute appraisal of character and motives, his wide knowledge of literature and intimate friendship with many of the leading men of his time, made him a wonderful companion. The memory of our long hours together will always remain a delight and an inspiration, for they brought me not only increased love and reverence for a beautiful spirit, but a new conception of the spiritual significance of the great world of nature he loved so well.

The work on this book was the chief pleasure and recreation of Mr. Muir's last days, for through it he lived again many of the most glorious experiences of his life. Always I shall remember the glow that would light his face whenever he paused in his work to tell in stirring words the story of some particularly inspiring day. Many years ago, after watching a sunrise in Glacier Bay, he wrote: "We turned and sailed away, joining the outgoing bergs . . . feeling that, whatever the future might have in store, the treasures we had gained this glorious morning would enrich our lives forever." How true this was, how vital a part of his life these treasures of memory were, no one who met him could fail to know. For him neither time nor age had power to dim the glory of that icy land, after the Sierra Nevada, the best loved of all his wilderness homes.

JOHN MUIR

By Charles Sprague Sargent

Few men whom I have known loved trees as deeply and intelligently as John Muir. The love of trees was born in him, I am sure, and had abundant nourishment during his wanderings over the Sierra, where for months at a time he lived among the largest and some of the most beautiful trees of the world. No one has studied the Sierra trees as living beings more deeply and continuously than Muir, and no one in writing about them has brought them so close to other lovers of nature.

Muir and I traveled through many forests, and saw together all the trees of western North America, from Alaska to Arizona. We wandered together through the great forests which cover the southern Appalachian Mountains, and through the tropical forests of southern Florida. Together we saw the forests of southern Russia and the Caucasus and those of eastern Siberia, but in all these wanderings Muir's heart never strayed very far from the California Sierra. He loved the Sierra trees the best, and in other lands his thoughts always returned to the great sequoia, the sugar pine, among all trees best loved by him; the incense cedar, the yellow pine, the Douglas spruce, and the other trees which make the forests of California the most wonderful coniferous forests of the world. With these he was always comparing all minor growths, and when he could not return to the Sierra his greatest happiness was in talking of them and in discussing the Sierra trees.

TO HIGHER SIERRAS

By William Frederic Badè

❦

"Longest is the life that contains the largest amount of time-effacing enjoyment—of work that is a steady delight. Such a life may really comprise an eternity upon earth." These words of John Muir I noted down after one of our last conversations. To few men was it given to realize so completely the element of eternity—of time-effacing enjoyment in work—as it was to John Muir. The secret of it all was in his soul, the soul of a child, of a poet, and of a strong man, all blended into one. Only such a one would have mounted the top of a pine tree in a gale-swept forest in order to enjoy the better the passionate music of the storm, and then tell how "we all travel the milky way together, trees and men; but it never occurred to me until this storm-day that trees are travelers in the ordinary sense. They make many journeys, not extensive ones it is true; but our own little journeys, away and back again, are only little more than tree-wavings—many of them not so much." When the storm had abated, he wrote, he "dismounted and sauntered down through the calming woods. The storm-tones died away, and turning toward the East, I beheld the countless hosts of the forests hushed and tranquil, towering above one another on the slopes of the hills like a devout audience. The setting sun filled them with amber light, and seemed to say while they listened, 'My peace I give unto you.' "

These quotations illustrate the irresistible charm of simplicity, the directness of poetical feeling and perception, that were a part of everything which Mr. Muir wrote, said, and did. When he struck out upon the long trail he was not only foremost among the nature writers of America, but in many respects the most distinguished figure among contemporary men of letters. It will take more than this hasteful, fretful generation to take the measure of his greatness, and to explore the sources of his power.

Before me lies a letter written to Mr. Muir by a friend forty-nine years ago. He was then twenty-nine years old and had just received a serious injury to one of his eyes. "Dear John," the writer says, "I have often wondered what God was training you for. He gave you the eye within the eye, to see in all natural objects the realized ideas of His mind. He gave you pure tastes, and the steady preference of whatsoever is most lovely and excellent. He has made you a more individualized existence than is common, and by your very nature and organization removed you from common temptations. . . . Do not be anxious about your calling. God will surely place you where your work is."

Thus early did his friends see in him those personal qualities and those powers of insight which gave a rare distinction to his person and his presence. Evil thoughts fled at the sound of his voice. An innate nobility of character, an unstudied reverence for all that is sublime in nature or in life, unconsciously called forth the best in his friends and acquaintances. In the spiritual as in the physical realm flowers blossomed in his footsteps where he went. After all it is to such men as John Muir that we must look for the sustenance of those finer feelings that keep men in touch with the spiritual meaning and beauty of the universe, and make them capable of understanding those rare souls whose insight has invested life with imperishable hope and charm.

Not many years ago the Directors of the Sierra Club arranged for a quiet little dinner in honor of Sir James Bryce, when he returned from his visit to Australia. To all intents and purposes there were only two men at the dinner, Bryce and Muir, for the rest were intent listeners—too intent, altogether, to take more than mental notes. Both were enlarging upon the value of the civilizing influences that arise from a deep and humane understanding of nature. Sir James ventured the remark that the establishment of national parks, and the fostering of a love of nature and out-door life among children, would do more for the morals of the nation than libraries and law codes. Muir welcomed this opinion, and added that children ought to be trained to take a sympathetic interest in our wild birds and animals. "Under proper training," he said, "even the most savage boy will rise above the bloody flesh and sport business, the wild foundational animal dying out day by day as divine uplifting, transfiguring charity grows in."

To all who knew John Muir intimately his gentleness and humaneness toward all creatures that shared the world with him, was one of the finest attributes of his character. He was ever looking forward to the time when our wild fellow creatures would be granted their indisputable right to a place in the sun. The shy creatures of forest and plain have lost in him an incomparable lover, biographer, and defender.

John Muir's writings are sure to live—by the law that men who lift their eyes at all from the commonplace ideals of work-a-day life will inevitably fix them on the snowy crests of human thought and achievement. Thence it is that they must derive their power to hope and to toil. Long as daisies shall continue to star the fields of Scotland men will choose to see them through the eyes of Burns. Forgotten generations have heard the nightingale sing her love-song at twilight; but a finer music is in her song since Keats listened to the notes from the thicket on the hill. Nor will the name of Wordsworth ever be dissociated from the warble of the rising lark and the call of the cuckoo across the quiet of rural England. John Muir is of their number. Among those who have won title to remembrance as prophets and interpreters of nature he rises to a moral as well as poetical altitude that will command the admiring attention of men so long as human records shall endure. He had "the eye within the eye." Thousands and thousands, hereafter, who go to the mountains, streams and cañons of California will choose to see them through the eyes of John Muir, and they will see more deeply because they see with his eyes.

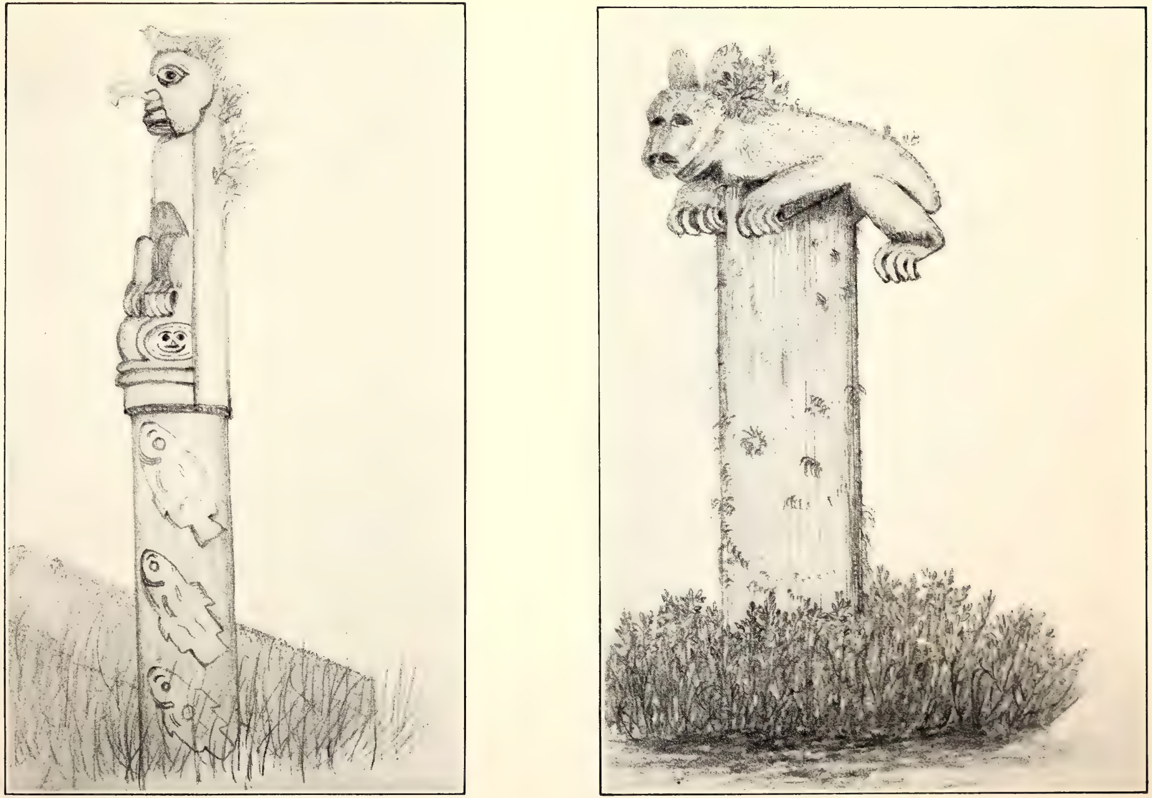
But while in a high sense his wisdom has become a part of us forever, his going has left an aching void in the hearts of all lovers of the California mountains. Long accustomed to meet him where wild rivers go singing down the cañons, and skyey trails are lost amid cloudy pines, they now must perforce apply to him the simple words which sixteen years ago he wrote on his visit to the grave of his friend Ralph Waldo Emerson: "He had gone to higher Sierras, and, as I fancied, was again waving his hand in friendly recognition."

JOHN MUIR AMONG THE PINES

"Sun-fed mountaineers rejoicing in their strength, chanting with the winds, in accord with the falling waters."—*Our National Parks*

Photo by Geo. R. King

PLATE CXLII.



PENCIL SKETCHES OF TOTEMS FROM THE OLD STICKEEN VILLAGE
FROM JOHN MUIR'S ALASKA NOTEBOOKS

A BIBLIOGRAPHY OF JOHN MUIR[*]

By Jennie Elliot Doran

◆

This bibliography is an attempt to present an annotated list, complete, with the exception of newspaper articles, of John Muir's writings and of works about him. The arrangement of material is alphabetical under the different headings—Muir's writings being followed by the works about him.

For assistance in the preparation of this list thanks are due Professor C. B. Bradley of the University of California, for the use of his "Reference List to the Published Writings of John Muir," published in 1897[†] Earlier lists published in the *Overland Monthly* by E. A. Avery and W. T. Kittredge have also been used.

HONORS

A. M., Harvard University, 1896.
LL. D., University of Wisconsin, 1897.
Litt. D., Yale University, 1911.
LL. D., University of California, 1913.
Member, American Academy of Arts and Letters.
Member, Washington Academy of Science.
Fellow, American Association for the Advancement of Science.
President, Sierra Club.
President, American Alpine Club.

---

[*] [Note.—This bibliography is a thesis for graduation from the Library School of the University of Wisconsin, prepared by Miss Doran in June, 1915, under the supervision of Miss Mary Emogene Hazeltine, Preceptor of the school. Miss Doran had found some help in her work from the use of a *Reference List* made by me in 1897, and on completing it was good enough to remember me with a copy of her manuscript. Being myself under promise to the editor to furnish a bibliography for the forthcoming Muir Memorial number of the Sierra Club Bulletin, I was of course overjoyed to find the work thus done to my hand, and, as appeared on examination, so well done that very little was left for me to do save to add the publications which have appeared since Miss Doran completed her work, and a few older ones which have recently come to my notice, together with an occasional note of information which seemed worthy of being included in the record. All material so added by me has been included within square brackets. An asterisk indicates that the reference has not been personally verified because the publication itself was not available for verification either in Madison or here in California.

Both Miss Doran and her preceptor have kindly consented to its publication here. And it seems in every way fitting that this—which seems likely to be the definite bibliography—should be the work of a student of John Muir's own university, and should be published by the Sierra Club with which he was ever increasingly identified from its very beginning to the day on which he left us.

Cornelius Beach Bradley.

January 15, 1916.]

[†] *University of California Magazine,* December, 1897.

BIBLIOGRAPHIES

Avery, E. A. Bibliography of John Muir. Overland, Oct., 1885, v. 6, p. 445-446.

Bradley, C. B. Reference List to the Published Writings of John Muir. Berkeley, University of California, 1898.
From the University of California Magazine, Dec., 1897.

Kittredge, W. T. Bibliography of John Muir. Overland, Oct., 1886. v. 8, p. 441-442.

A revision of the bibliography published by E. A. Avery in Overland, Oct., 1885, v. 6, p. 445-446.

San Francisco Public Library. Writings of John Muir. Bulletin, Feb. 1902. v. 8, p. 19.

BOOKS BY MUIR

Edward Henry Harriman. Doubleday, 1912. Gratis to libraries.

"Enumerates the characteristics that made Harriman a fundamental and progressive factor in the financial world, and no less among his fellow men." *Book Review Digest.*

Reviewed in Dial, June 1, 1912, v. 52, p. 442.

Letters to a Friend. Houghton, 1915. 300 copies, $3.00.

"They were written in the impressionable years of early manhood, soon after their writer had completed his four years of unprescribed studies at the University of Wisconsin." *Dial.*

Reviewed in Dial, April 15, 1915, v. 58, p. 294-295, by P. F. Bicknell; N. Y. Times, April 18, 1915, v. 20, p. 144, by Hildegarde Hawthorne.

Mountains of California. Century, 1894. $1.50. New and enlarged edition, 1911.

"We have here nature pure and unadulterated . . . sixteen chapters, each a gem of landscape or animal painting." *Nation.*

Reviewed in Athenæum, Jan. 19, 1895, p. 77-78; Dial, Feb. 1, 1895, v. 18, p. 75-77, by A. M. Earle; Nation, Nov. 15, 1894, v. 59, p. 366-367.

The book is chiefly made up of articles, revised and enlarged, which appeared in Century and Scribner's Monthly under the following titles and dates:

Bee-pastures of California. Century, June-July, 1882, v. 24, p. 222-229, 388-396.
Coniferous Forests of the Sierra Nevada. Scribner's Monthly, Sept., 1881, v. 22, p. 710-723, 921-931.
Douglass [Douglas] Squirrel of California. Scribner's Monthly, Dec., 1878, v. 17, p. 260-266.
Glacier Meadows of the Sierra. Scribner's Monthly, Feb., 1879, v. 17, p. 478-483.
Humming-bird of the California Waterfalls. Scribner's Monthly, Feb., 1878, v. 15, p. 545-554.
In the Heart of the California Alps. Scribner's Monthly, July, 1880, v. 20, p. 345-352.
Mountain Lakes of California. Scribner's Monthly, Jan., 1879, v. 17, p. 411-420.

Passes of the Sierra. Scribner's Monthly, March, 1879, v. 17, p. 644-652.
Wild Sheep of the Sierra. Scribner's Monthly, May, 1881, v. 22, p. 1-11.
Wind Storm in the Forests of the Yuba. Scribner's Monthly, Nov., 1878, v. 17, p. 55-59.

My First Summer in the Sierra. Houghton, 1911. $2.50.

"As a revelation of 'the glory and freedom of the out-of-doors' exemplified in the Sierra Nevada Mountains in and about the Yosemite Valley, Mr. Muir's narrative of his first impressions in those regions is most charming and refreshing." *Dial.*

Reviewed in A. L. A. Booklist, Sept., 1911, v. 8, p. 25; Dial, Oct. 1, 1911, v. 51, p. 251-252, by C. A. Kofoid; Literary Digest, Aug. 5, 1911, v. 43, p. 216; Nation, June 29, 1911, v. 92, p. 651; N. Y. Times, June 11, 1911, v. 16, 6. 374; Review of Reviews, July, 1911, v. 44, p. 123.

Enlarged from sketches published in the Atlantic, Jan.-April, 1911, v. 107, p. 1-11, 170-181, 339-349, 521-528.

Our National Parks. Houghton, 1901. $1.75. New and enlarged edition, 1909. $3.00.

"Throughout this volume there is a mixture of aesthetic appreciation, scientific knowledge, and personal adventure that gives it a unique charm." *Nation.*

Reviewed in Dial, March 1, 1902, v. 32, p. 163-164; Nation, April 10, 1902, v. 74, p. 294-295.

The book is made up of sketches published in the Atlantic under the following titles and dates:
American Forests. Aug., 1897, v. 80, p. 145-157.
Among the Animals of the Yosemite. Nov., 1898, v. 82, p. 617-631.
Among the Birds of the Yosemite. Dec., 1898, v. 82, p. 751-760.
Forests of Yosemite. April, 1900, v. 85, p. 493-507.
Fountains and Streams of Yosemite National Park. April, 1901, v. 87, p. 556-565.
Hunting Big Redwoods. Sept., 1901, v. 88, p. 304-320.
Wild Gardens of the Yosemite Park. Aug., 1900, v. 86, p. 167-179.
Wild Parks and Forest Reservations of the West. Jan., 1898, v. 81, p. 15-28.
Yellowstone National Park. April, 1898, v. 81, p. 509-522.
Yosemite National Park. Aug., 1899, v. 84, p. 145-152.

Stickeen. Houghton, 1909. 60c. New edition, 1914. 25c. (Riverside literature series.)

"Relates the narrow escape of the explorer and his faithful dog companion during a storm in the glacier country." *A. L. A. Booklist.*

Reviewed in A. L. A. Booklist, May, 1909, v. 5, p. 149; Nation, July 8, 1909, v. 89, p. 37; N. Y. Times, April 3, 1909, v. 14, p. 197; Review of Reviews, Aug., 1909, v. 40, p. 253.

Enlarged from a sketch published in Century, Sept. 1897, v. 54, p. 769-776, under the title "An Adventure with a Dog and a Glacier."

Story of My Boyhood and Youth. Houghton, 1913. $2.00.

"The author's adventures as a wholesome, nature-loving boy in a strict Presbyterian home in Scotland, his emigration to America, his interest in the domestic animals and wild life about his home in Wisconsin, . . . his enthusiasm as an inventor, and his life at the University of Wisconsin, are recounted in a vivid and interesting style, with many well told anecdotes and much humor." *A. L. A. Booklist.*

Reviewed in A. L. A. Booklist, May, 1913, v. 9, p. 382; Dial, April 1, 1913, v. 54, p. 293-294, by P. F. Bicknell; Independent, July 3, 1913, v. 75, p. 43-44; Literary Digest, July 5, 1913, v. 47, p. 26-27; Nation, April 17, 1913, v. 96, p. 391-392; N. Y. Times, March 23, 1913, v. 18, p. 158; Outlook, May 10, 1913, v. 104, p. 71-72; Review of Reviews, June, 1913, v. 47, p. 761; Wisconsin Alumni Magazine, Dec., 1913, v. 15, p. 134; Yale Review, April, 1914, v. 3, p. 611-614, by W. E. Leonard.

Enlarged from sketches published in the Atlantic under the following titles and dates:

Lessons of the Wilderness. Jan., 1913, v. 111, p. 81-92.
My Boyhood. Nov., 1912, v. 110, p. 577-587.
Out of the Wilderness. Feb., 1913, v. 111, p. 266-277.
Plunge Into the Wilderness. Dec., 1912, v. 110, p. 813-825.

Selections from the final chapter reprinted in the Wisconsin Alumni Magazine, April, 1914, v. 15, p. 295-301.

[**Travels in Alaska.** Houghton, 1915. $2.50; large paper ed., $5.00.

The late and ripe fruitage of the remarkable series of explorations made by Mr. Muir during the summers of 1879, 1880 and 1881. His immediate impressions were graphically recorded in three series of letters published in the San Francisco Bulletin. See Reference List which follows this article, p. 58.]

The Yosemite. Century, 1912. $2.40.

"Earthquake and avalanche adventures, careful studies of flowers, trees, rocks, streams, and other features, by the most ardent of nature lovers, go to make up a book of exceptional interest." *A. L. A. Booklist.*

Reviewed in A. L. A. Booklist, June, 1912, v. 8, p. 404; Bellman, May 18, 1912, v. 12, p. 627; Dial, June 1, 1912, v. 52, p. 429, by P. F. Bicknell; Literary Digest, June 1, 1912, v. 44, p. 1165-1168, by John Burroughs; Nation, May 9, 1912, v. 94, p. 472; N. Y. Times, April 28, 1912, v. 17, p. 253; Outlook, May 4, 1912, v. 101, p. 43; Review of Reviews, June, 1912, v. 45, p. 766-767.

CHAPTERS BY MUIR IN BOOKS AND PAMPHLETS

Alaska via Northern Pacific Railroad. St. Paul, 1892.

Railroad folder descriptive of Alaskan scenery.

Botanical Notes on Alaska (in U. S. House documents, 47th Congress, 2d session, v. 23, No. 105, p. 47-53).

"Plants named will be valuable for comparison with the plants of other regions."

[**Glaciers and Snow-banners.** Contemporary biography of California's Representative Men. San Francisco. Bancroft, 1882. v. 2, p. 104-112.

The selection follows a two-page biographical notice.]

Letters to Professor J. D. Butler (in Butleriana. Miscellanies. v. 2).

Contents: John Muir home from a year of world-circling, July 20, 1904—His telepathic search for Professor J. D. Butler, Aug., 1869.

Linnæus (in Warner, C. D., Library of the World's Best Literature. 1897. v. 16, p. 9077-9083).

The life and writings of the Swedish naturalist, with special reference to his contributions to the science of botany.

Notes on the Pacific Coast Glaciers (in Harriman Alaska Expedition. 1901. v. 1, p. 119-135. Doubleday, $7.50 each volume).

[**On the Effects of the Earthquake of 26th March, 1872,** in the Yosemite Valley. Bost. Soc. Nat. Hist. Proc., 1873, v. 15, p. 185-186.

Extract from a letter of Mr. John Muir, read by Dr. S. Kneeland.]

On the Glaciation of the Arctic and Sub-Arctic Regions visited by the United States steamer "Corwin" in the year 1881 (in U. S. Senate documents, 48th Congress, 1st session. v. 8, No. 204, p. 135-147).

On the Post-Glacial History of Sequoia Gigantea (in American Association for the Advancement of Science. Proceedings. Aug. 1876. v. 25, p. 242-253).

Clear and compact account of his explorations in the "Sequoia belt of the Sierra Nevada."

[Read by Professor Asa Gray at the meeting of the Association.]

Picturesque California and the Region West of the Rocky Mountains from Alaska to Mexico; ed. by John Muir. San Francisco, Dewing, 1888. 2 v.

The following chapters were written by Muir: Peaks and Glaciers of the High Sierra, The Passes of the High Sierra, The Yosemite Valley, Mount Shasta, Alaska, Washington and Puget Sound, The Basin of the Columbia River.

Scenery of California (In California the Land of Promise, p. 16-21. State Board of Trade, San Francisco, 1897-1898).

Selections (in In American Fields and Forests, 1909, Houghton. $1.50).

[The selections by Mr. Muir are both from Our National Parks, viz: Among the Birds of the Yosemite, p. 191-214; and The Sequoia, p. 215-267.]

Studies in the Formation of Mountains in the Sierra Nevada, California (in American Association for the Advancement of Science. Proceedings. Aug. 1874, v. 23, pt. 2, p. 49-64).

A scholarly article giving detailed information.

[This paper was read by Professor Asa Gray at the meeting of the Association.]

[**Winter Phenomena of the Yosemite Valley.** Bost. Soc. Nat. Hist. Proc., 1873, v. 15, p. 148-151.

Extracts from letters by Mr. Muir read before the Society by Dr. S. Kneeland.]

PERIODICAL ARTICLES BY MUIR

NOTE.—Periodical articles, subsequently collected in book form, have been listed under the title of the specific book.

Alaska. American Geologist, May, 1893, v. 11, p. 287-299.

Extremely interesting account of an Alaskan trip.

Alaska Trip. Century, Aug., 1897, v. 54, p. 513-526.

Descriptive of the rivers, forests, and glaciers of Alaska.

Ancient Glaciers of the Sierra. Californian, Dec., 1880, v. 2, p. 550-557.

Characteristic specimens are described.

Browne the Beloved. Dial, June 16, 1913, v. 54, p. 492.

A tribute to the memory of Francis Fisher Browne.

By-ways of Yosemite Travel. Overland, Sept., 1874, v. 13, p. 267-273.

Discovery of Glacier Bay. Century, June, 1895, v. 50, p. 234-247.

An account of Muir's explorations in Alaska in 1879 and 1880.

Endangered Valley. Century, Jan., 1909, v. 77, p. 464-469.

Description of the beauty of the Hetch-Hetchy Valley in the Yosemite National Park.

[Appeared also in what seem to be two editions of the same campaign pamphlet with different titles, viz: *a,* "Let All the People Speak and Prevent the Destruction of the Yosemite Park," not dated, but probably issued early in 1909; and *b,* "Let Every One Help to Save the Famous Hetch-Hetchy Valley," Nov., 1909, p. 14-17.]

Explorations in the Great Tuolumne Cañon. Overland, Aug., 1873, v. 11, p. 139-147.

Method of study was to drift about "from rock to rock, from stream to stream, from grove to grove."

Features of the Proposed Yosemite National Park. Century, Sept., 1890, v. 40, p. 656-667.

"Briefly touched upon a number of the chief features of a region which it is proposed to reserve out of the public domain for the use and recreation of the people."

Flood-storm in the Sierra. Overland, June, 1875, v. 14, p. 489-496.

Vivid description of a storm witnessed by Muir.

Forest Reservations and National Parks. Harper's Weekly, June 5, 1897, v. 41, p. 563-567.

With special reference to their preservation and management. [Same article in SIERRA CLUB BULLETIN, Jan., 1896, v. 1, p. 271-284.]

Geologist's Winter Walk. Overland, April, 1873, v. 10, p. 355-358.

A letter containing detailed descriptions of the cañons, rivers, and mountains studied on a walking trip.

Grand Cañon of the Colorado. Century, Nov., 1902, v. 65, p. 107-116.

Clear and interesting descriptions of the wonders of "a gigantic sunken landscape made out of . . . limestone and sandstone."

Hetch-Hetchy Valley. Overland, July, 1873, v. 11, p. 42-50.

Notes the similarity to the Yosemite Valley.

Letter from the Yosemite Valley. Craftsman, March, 1905, v. 7, p. 654-665.

Description of the natural beauties observed on approaching the Yosemite.

Living Glaciers of California. Harper's Magazine, Nov., 1875, v. 51, p. 769-776.

Discussion of the essential characteristics of glaciers.

Living Glaciers of California. Overland, Dec., 1872, v. 9, p. 547-549.

Tells of the discovery of living glaciers, and of the method of proving that these ice-masses are glacial formations.

Reprinted in Journal of Science and Arts, Jan. 1873, v. 5, p. 69-71.

[The observations which form the kernel of this article seem first to have taken shape in a letter to Mrs. Carr, now published on pages 140-142 of his Letters to a Friend. The language of the letter is reproduced verbatim in the article.]

New Forest Reservation. Mining and Scientific Press, v. 74, p. 283.

New Sequoia Forests of California. Harper's Magazine, Nov., 1878, v. 57, p. 813-827.

Studies of the big trees, their size, distribution, and beauty.

Rambles of a Botanist Among the Plants and Climates of California. Old and New, June, 1872, v. 5, p. 767-772.

Rival of the Yosemite. Century, Nov., 1891, v. 43, p. 77-97.

Description of "The Cañon of the South Fork of Kings River, California." *Sub-title.*

Sargent's Silva. Atlantic, July, 1903, v. 92, p. 9-22.

A masterly review of The Silva of North America, 1890-1902, by C. S. Sargent.

Snow Banners of the California Alps. Harper's Magazine, July, 1877, v. 55, p. 162-164.

Personal observations of a "storm phenomenon."

Snow-storm on Mount Shasta. Harper's Magazine, Sept., 1877, v. 55, p. 521-530.

Graphic account of personal experiences in a severe storm.

Studies in the Sierra. Overland, 1874-1875.

A series of articles which appeared in the above periodical under the following titles and dates:

Ancient Glaciers and their Pathways. July, 1874, v. 13, p. 67-79.
Formation of Soils. Dec., 1874, v. 13, p. 530-540.
Glacial Denudation. Aug., 1874, v. 13, p. 174-184.
Mountain Building. Jan., 1875, v. 14, p. 64-73.
Mountain Sculpture. May, 1874, v. 12, p. 393-403.
Origin of Yosemite Valleys. June, 1874, v. 12, p. 489-500.
Post-glacial Denudation. Nov., 1874, v. 13, p. 393-402.

[The article on Mountain Sculpture is noticed and quoted from at considerable length in Jour. Am. Sci., 1874, v. 7, p. 515-516; and strangely enough is ascribed to Prof. Ezra F. Carr, who sent it to the Journal. The error, due probably to the fact that the Overland did not then print the names of its contributors along with their articles, was corrected in the next volume (8) p. 80.]

Three Adventures in the Yosemite. Century, March, 1912, v. 63, p. 656-661.

Contents: Perilous Exploration of the Yosemite Fall—Ride on an Avalanche—Earthquake Storms.

Treasures of the Yosemite. Century, Aug., 1890, v. 40, p. 483-500.

Description of the Yosemite Valley, "a noble mark for the traveler, whether tourist, botanist, geologist, or lover of wilderness pure and simple."

Tuolumne Yosemite in Danger. Outlook, Nov. 2, 1907, v. 87, p. 486-489.

Compares the Hetch-Hetchy Valley with Yosemite Valley, and tells of the scheme to make it into a reservoir.

Twenty Hill Hollow. Overland, July, 1872, v. 9, p. 80-86.

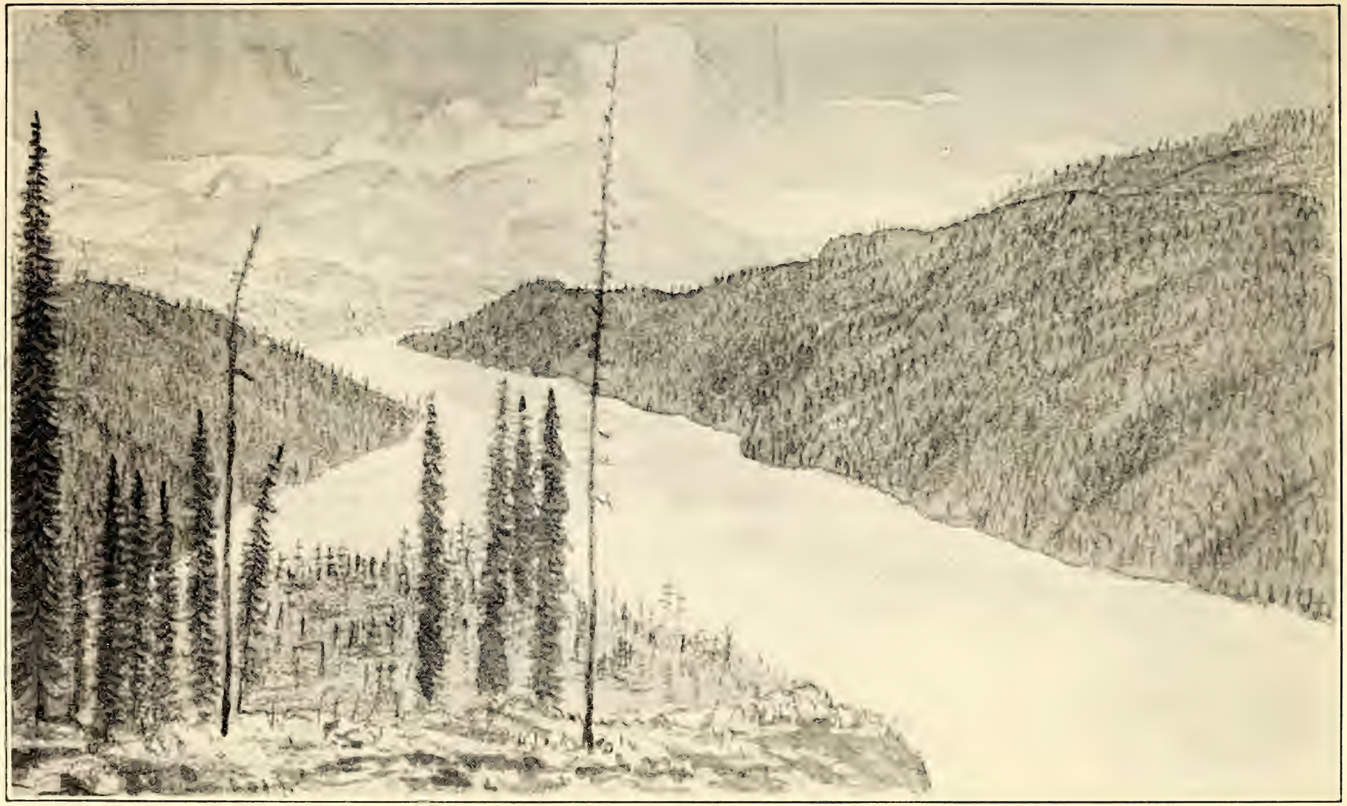
"A word for the great central plain of California in general, and for Twenty Hill Hollow, in Merced County, in particular."

Wild Sheep of California. Overland, April, 1874, v. 12, p. 358-363.

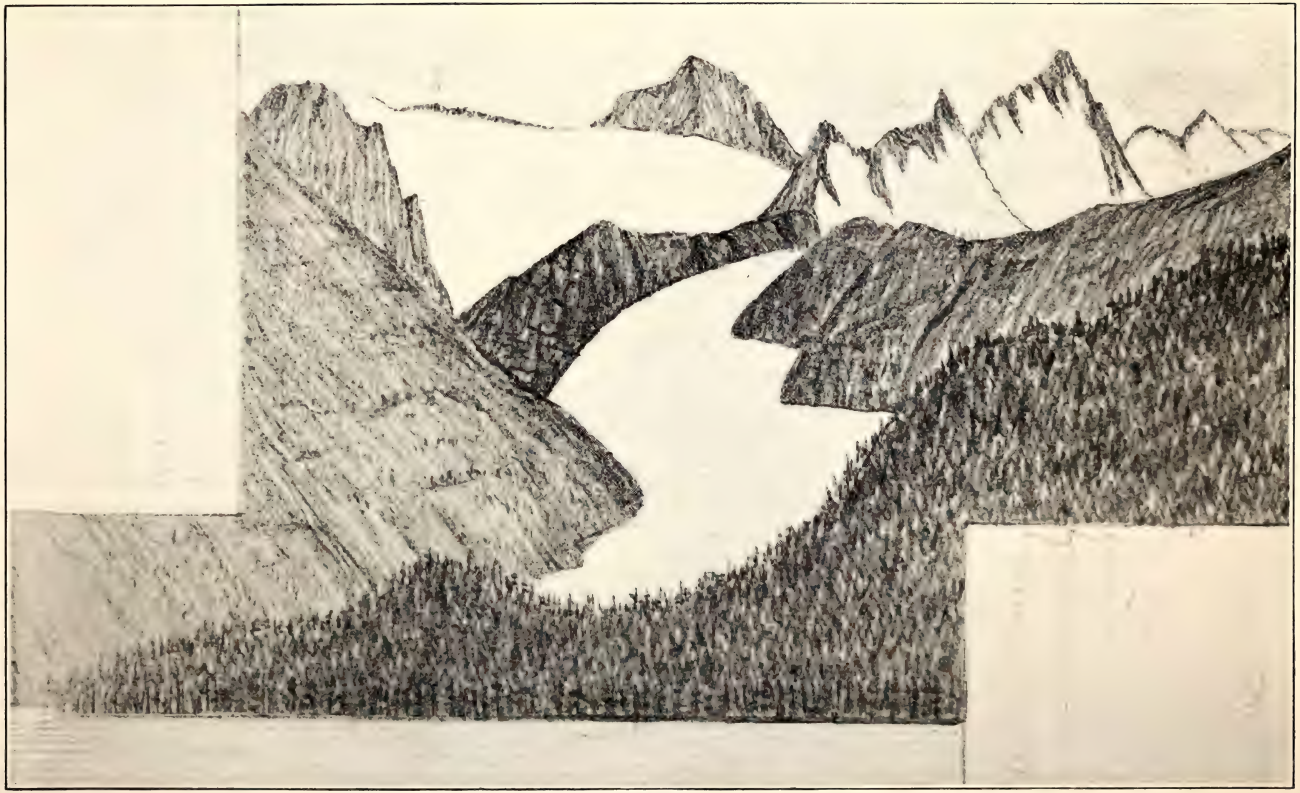
Describes their habits and appearance, and compares them with domestic sheep.

Wild Wool. Overland, April, 1875, v. 14, p. 361-366.

Compares the quality of the wool of the wild sheep with that of the domestic.



PENCIL SKETCH OF DEASE LAKE FROM JOHN MUIR'S ALASKA NOTEBOOKS



PENCIL SKETCH FROM JOHN MUIR'S ALASKA NOTEBOOKS

Yosemite Storms and Floods. Outlook, June 3, 1905, v. 80, p. 297-302.

The waterfalls of the Yosemite in flood time and storm.

Yosemite Valley in Flood. Overland, April, 1872, v. 8, p. 347-350.

Account of a three days' storm, and its resulting flood.

ARTICLES ON MUIR IN ENCYCLOPEDIAS AND OTHER GENERAL REFERENCE WORKS

Adams, O. F. Dictionary of American Authors. 1901, p. 265. 4 lines.

American Men of Science. 1910, p. 338. 7 lines.

Americana. 1912, v. 14, pages unnumbered. ⅓ col.

Appleton's Cyclopædia of American Biography. 1900, v. 7, p. 201. ½ col.

Appleton's New Practical Cyclopædia. 1910, v. 4, p. 348. ¼ col.

Century Cyclopedia of Names. 1911, p. 713. 14 lines.

Funk and Wagnall's Standard Encyclopedia. 1913, v. 18, p. 20. ½ col.

Harper's Encyclopædia of United States History. 1902, v. 6, p. 309. ¼ col. Por.

Lamb's Biographical Dictionary. 1903, v. 5, p. 616. ¾ col.

Men of America. 1908, p. 1668. ¾ col.

National Cyclopædia of American Biography. 1899, v. 9, p. 449. 2 col. Por.

Good biographical sketch, with special note of his periodical articles.

Nelson's Perpetual Loose-Leaf Encyclopædia. 1909, v. 8, p. 340. ½ col.

New International Encyclopædia. 1905, v. 14, p. 91. ¼ col.

New International Year Book. 1914, p. 470. 1½ col.

Good summary of Muir's activities and writings, written after his death.

New Student's Reference Work. 1911, v. 3, p. 1275. ½ col.

Brief account of his explorations in studying glaciers.

Standard Reference Work. 1913, v. 4, pages unnumbered. 2 col.

Biographical sketch, and description of Muir Glacier, with good illustration.

Thomas, Joseph. Universal Pronouncing Dictionary of Biography and Mythology. 1901, v. 2, p. 1781. 5 lines.

Warner, C. D. Library of the World's Best Literature, by C. D. Warner and others. 1897-1898, v. 18, p. 10405-10414. Por.; v. 29, p. 394. 8 lines.

V. 18 contains a biographical sketch, followed by a selection, "A Wind-storm in the Forests," from his "The Mountains of California."

Who's Who. 1914, v. 66, p. 1507. ⅓ col.

First entry made in 1903, v. 55, p. 990.

Who's Who in America. 1914-1915, v. 8, p. 1689. ⅓ col.

First entry made in 1899-1900, v. 1, p. 514.

CHAPTERS ABOUT MUIR IN BOOKS AND PAMPHLETS

Barrus, Clara. Our Friend John Burroughs. Houghton, 1914. $2.

Scattered references to Muir. For pages see index under Muir.

California—Public Instruction Dept. Two California Neighbors. Sacramento, published by the State, 1912.

Contains an extract from John Swett's "Public Education in California," describing Swett's friendship with Muir; also gives a biographical sketch by E. F. Strother.

James, G. W. Studious Hero of the Mountains, John Muir (in James, G. W. Heroes of California. 1910, p. 338-360. Little, $2.)

Interesting account of Muir's life and character. Contains extracts from his letters.

Markham, Edwin. John Muir, Poet-Scientist (in Markham, Edwin. California the Wonderful. 1914, p. 368-369. N. Y. Hearst's International Library Co. $6.)

[**Pammel, L. H.** John Muir (in Major F. Lacey Memorial Volume and Report of Iowa Park and Forestry Association for 1913, p. 477-481.)

An appreciative sketch of his life and work.]

PERIODICAL ARTICLES ABOUT MUIR

An Act of Heroism. Craftsman, March, 1905, v. 7, p. 665-667.

Describes the heroic rescue, by Muir, of a companion in danger.

Badè, W. F. John Muir. Science, March 5, 1915, v. 41, p. 353-354.

A concise, clear account of his life, activities and writings.

Baker, R. S. John Muir. Outlook, June 6, 1903, v. 74, p. 365-377.

"Shows how the lad Muir prepared himself, unconsciously and unknowingly, for the work of the man Muir." *James.*

Barrus, Clara. In the Yosemite with John Muir. Craftsman, Dec., 1912, v. 23, p. 324-335. Por.

Personal impressions of Muir formed on a camping trip in the Yosemite.

——— With John o' Birds and John o' Mountains in the Southwest. Century, Aug., 1910, v. 80, p. 521-528. Por.

Contrasts Muir's character with Burrough's.

Bland, H. M. John Muir. Overland, June, 1906, v. 47, p. 517-525. Por.

Purely biographical.

Buckley, E. R. John Muir. Wisconsin Alumni Magazine, Jan., 1900, v. 1, p. 141-146. Por.

"The information and part of the phraseology of this biography was taken from the "National Cyclopædia of American Biography." *Footnote.*

Carr, J. C. John Muir. Californian Illustrated Magazine, June, 1892, v. 2, p. 88-94. Por.

Descriptions of Muir's inventions as a young man, and of his wanderings and final arrival in California.

Clarken, G. G. At Home with John Muir. Overland, Aug., 1908, v. 52, p. 125-128.

"A keen appreciation of Mr. Muir and his characteristics." *Overland.*

Comrade of the Giant Trees. Literary Digest, Jan. 16, 1915, v. 50, p. 114-119.

"A man so moved by the spiritual forces that he actually compelled a careless nation to preserve the Yosemite Valley, the Big Trees, and the Yellowstone National Park as an everlasting heritage of the people."

In "Personal Glimpses."

Concerning an Old Student. Wisconsin Alumni Magazine, Nov., 1900, v. 2, p. 75-76.

Description of Muir's inventions during his student life at the University of Wisconsin.

Conversation with John Muir. World's Work, Nov., 1906, v. 13, p. 8249-8250.

In "Among the World's Workers."

Editorials on John Muir. Nation, Dec., 1914, v. 99, p. 762, 781-782.

Gives brief sketches of his life and works. Written after his death.

French, Harold. Psalmist of the Sierra. Sunset, Aug., 1914, v. 33, p. 355-357. Por.

Graydon, Katherine Merrill. John Muir. Butler Alumni Quarterly (Indianapolis), July, 1915, p. 81-92.

A series of remarkably vivid sketches of John Muir at successive stages of his development and achievement, written by one who knew him well and loved him; one who when a mere child used to accompany her aunt as she came to his darkened room to befriend and comfort the suffering stranger after the accident to his eye.]

John Muir. Bookman, Dec., 1898, v. 8, p. 288-290. Por.

In "Chronicle and Comment."

John Muir. Century, March, 1915, v. 89, p. 794-796.

Comparison with John Burroughs.

Same in Pattie, F. L., American Literature Since 1870. Not yet published.

John Muir. Chautauquan, Sept., 1907, v. 48, p. 87-88.

As a nature student.

John Muir. Scientific American, Jan. 9, 1915, v. 112, p. 47.

Written after his death.

John Muir: Geologist, Explorer, Naturalist. Craftsman, March, 1905, v. 7, p. 637-654.

Tells of the influences that helped to mold his character, and of his later writings and activities.

John Muir: Naturalist. Outlook, Jan. 6, 1915, v. 109, p. 11-12.

Editorial written after his death.

"John o' the Mountains." Review of Reviews, Feb., 1915, v. 51, p. 242-243.

Enumerates his activities and contains extracts from other periodical articles. Written after his death.

Johnson, R. U. Personal Impressions of John Muir. Outlook, June 3, 1905, v. 80, p. 303-306. Por.

Impressions gathered on a camping trip with Muir. Tells of the origin of the Yosemite National Park.

Johnson, W. H. John Muir. Nation, Jan. 14, 1915, v. 100, p. 50.

A letter to the editor of the Nation noting the attractiveness of Muir's *Stickeen,* and suggesting a new low-priced edition.

Knapp, Adeline. Some Hermit Homes of California Writers. Overland, Jan., 1900, v. 35, p. 2-5. Por.

Description of Muir's "shelter in which he might take refuge during the least endurable storms."

Lore of the Late John Muir. Bookman, Feb., 1915, v. 40, p. 616-618. Por.

An appreciation of his life and work. Written soon after his death.

Millard, Bailey. John Muir. Country Life, March, 1915, v. 27, p. 76-77. Por.

Sketch of his life and activities. Written after his death.

*——— John Muir. Suburban Life, Sept., 1908, v. 7, p. 121-122, 140.

——— Skyland Philosopher. Bookman, Feb., 1908, v. 26, p. 593-599.

Biographical sketch containing anecdotes illustrating his characteristics.

Nature-Study Transmuted Into Literature. Dial, Jan. 16, 1915, v. 58, p. 39.

Editorial expressing the regret caused by the death of Muir.

Reid, Harvey. John Muir. Outlook, Nov. 28, 1903, v. 75, p. 763-764.

Anecdotes by a classmate of Muir's in the University of Wisconsin.

Roorbach, Eloise. John Muir. Craftsman, Feb., 1915, v. 27, p. 479-480.

A tribute to Muir's power of interpreting nature. Written after his death.

Roosevelt, Theodore. John Muir: an Appreciation. Outlook, Jan. 6, 1915, v. 109, p. 27-28.

Reminiscent of a few days spent with Muir in the Yosemite. Written after his death.

Strother, French. John Muir. World's Work, April, 1907, v. 13, p. 8804-8808.

"Naturalist, geologist, interpreter of nature." *Sub-title.*

——— Three Days with John Muir. World's Work, March, 1909, v. 17, p. 11355-11358.

"Conversations with the man who has a most intimate knowledge of nature—his home in the Alhambra Valley, and his excursions into the Sierras." *Sub-title.*

Sudworth, G. B. John Muir. American Forestry, March, 1915, v. 21, p. 184-185.

Recounts the value of his efforts in forest preservation. Written after his death.

Swett, John. John Muir. Century, May, 1893, v. 46, p. 120-123.

Biographical sketch, with special emphasis on his explorations and discoveries.

Wyatt, Edith. John Muir. New Republic, Feb. 20, 1915, v. 2, p. 69-71.

A tribute to his memory.

Young, S. H. Alaska Days with John Muir. Outlook, v. 110. Three articles which appeared under the following titles and dates:

The Mountain. May 26, 1915, v. 110, p. 189-199.
The Ice Chief. June 23, 1915, v. 110, p. 431-442.
The Lost Glacier. July 28, 1915, v. 110, p. 723-733.

The first is an intimate account of a mountain-climbing expedition and of the author's rescue by Muir from a perilous situation. The other two are accounts of two long voyages of exploration and discovery which Muir and the writer of these articles took together in 1879 and 1880. [The three were afterwards published in book form under the same title as above, by Fleming H. Revell Co., 1915, $1.25.]

POEMS ABOUT MUIR

Bland, H. M. John Muir. Out West, March, 1915, v. 41, p. 121.

Edson, C. L. John o' the Mountains. Collier, Jan. 16, 1915, v. 54, p. 14.

Tompkins, I. C. John Muir: the Mountaineer. Sunset, May, 1900, v. 5, p. 31.

Reprinted in the Wisconsin Alumni Magazine, Nov., 1900, v. 2, p. 74.

PORTRAITS OF MUIR

Chautauquan, May, 1904, v. 39, p. 256.
Craftsman, Feb., 1915, v. 27, p. 458.
Outing, May, 1903, v. 42, p. 140.
Outlook, Jan. 6, 1915, v. 109, p. 32.
Overland, Aug., 1908, v. 52, p. 95; May, 1913, v. 61, p. 434.
Popular Science Monthly, March, 1915, v. 86, p. 310.
Review of Reviews, Nov., 1902, v. 26, p. 569.
Sunset, July, 1909, v. 23, p. 2.
World's Work, March, 1902, v. 3, p. 1802; Feb., 1910, v. 19, p. 12529. (With John Burroughs.)

A REFERENCE LIST TO JOHN MUIR'S NEWSPAPER ARTICLES

By Cornelius Beach Bradley

Newspaper articles have no proper place in a bibliography. If noticed at all, they must appear as addenda or as postscript —as they do here. Yet Mr. Muir's letters are of much more than ordinary interest, not merely in themselves as immediate memoranda of vivid experience and kindled feeling on the part of a gifted personality, but also for the rôle they played in the development of the writer's powers. So far as he continued the practice of writing them, they were the first drafts of chapters in his later books—the fresh-quarried ore which, in his brooding mind, through the long years was slowly transmuted into the fine gold of his finished work.

In Mr. Muir's case, indeed, the process began long before he became a newspaper correspondent. We see it in his *Letters to a Friend*—now happily accessible—portions of which are found to have been transferred almost verbatim into subsequent publications. And the material of his very latest work, *Travels in Alaska,* published since his death, first saw the light thirty-six years ago in the shape of three series of letters to the *San Francisco Bulletin.*

Nearly all these newspaper letters are grouped in distinct series, each series being the record of a season's explorations or quest. The serial letters began with a group of three Yosemite studies in 1871-1872, and were concluded eighteen years later in another group of three written from the same beloved valley.

The stream of Mr. Muir's writing of this sort rose steadily for ten years to its flood-tide in 1881, in the famous series of twenty-one letters written during the cruise of the "Corwin" in search of the "Jeanette." Then it suddenly ebbed. After that there was one letter in 1885, three—already mentioned—in 1889, and one more in 1897. There ends Mr. Muir's list. There were probably a few more written later, but they were no longer an organic feature of his literary work.

The causes for this change are not far to seek. His later travels were no more by untrodden ways and in unexplored realms. The powerful stimulus of discovery became therefore less and less an element in his inward prompting to write. Coincident with this was the absence henceforth of financial necessity. He no longer needed to write that he might have the means to continue his travels and studies. He was now free to address himself directly to putting into final and enduring shape the priceless results already won through long years of toil and hardship. But more potent probably than all these causes was the inward ripening of the man himself in heart and mind, not unlike that of Wordsworth when he exchanged the ecstasies—the "aching joys" and "giddy raptures"—of his youthful passion for Nature and of his pursuit of her, for a more thoughtful and more manly devotion. In Mr. Muir's case the change was no doubt less pronounced, but it was there, and it found significant and noble expression thenceforth in his ceaseless efforts on the one hand to rescue the glory and charm of Nature from selfish spoliation and wanton destruction; and on the other, so to interpret Nature that all men might worthily love and enjoy her.

* * * * * *

The newspaper articles here listed are the ones which appeared in my *Reference List* of 1897, which again was based chiefly upon Mr. Muir's printed *List of the Published Writings of John Muir* (Martinez, 1891), supplemented by entries in his own handwriting which brought it down to 1897. No serious attempt has been made to extend that list, both because after that date Mr. Muir very rarely wrote for the newspapers, and because no clue has been found to what he did write.

His list was chronological—was apparently a transcript from a memorandum book in which he was in the habit of jotting down the general topic or topics of the article, the publication to which it was sent, and the date of writing or of sending—month and year only, or sometimes only the month. The date of publication never appeared at all. Since this last was absolutely indispensable, if only for verification, a systematic search was made through the newspaper files of those years to recover it. The task was rendered the more laborious and perplexing by two circumstances: In the first place, Mr. Muir's articles were dated *letters,* apparently without title or heading. The newspaper headings were therefore the work of the editor, and not at all likely to correspond with Mr. Muir's private memoranda. In the second place, through irregularities of the mails, or through accidents in the office, the letters did not always appear in the order in which they were written. In some cases they were delayed for months. Nevertheless the search was fairly successful. In the Californian files only four articles out of eighty-three remain undiscovered. Two of these, written in the Alaskan wilderness, probably never reached their destination. Files of the eastern newspapers concerned were not to be found in California, and, so far, attempts to have them searched in the East have not been successful. Four articles assigned to them must therefore remain for the present without verification.

The alphabetical arrangement of the older list having proved unsatisfactory for the present purpose, it has been replaced by a serial arrangement in chronological sequence. The titles have been revised to correspond in general with the published headings, though, in certain cases where these seemed to give insufficient characterization, a more fitting title from Mr. Muir's list has been added or substituted.

Dates in round brackets are the dates of writing, square brackets indicate that the article so included could not be found after diligent search. An asterisk indicates that the reference has not been verified because the files of the publication were not available for examination.

I. Serial Letters to the "New York Tribune"

[Yosemite Glaciers, Sept., 1871.]
[Yosemite in Winter. Jan. 1, 1872.]
[Yosemite in Spring. May 7, 1872]—The dates are Mr. Muir's.

II. Serial Letters to the "San Francisco Bulletin"

First Series—The Shasta Region. 5 letters, Oct., 1874-Jan., 1875.

Salmon-breeding on the McCloud River. (Oct. 24.) Oct. 29, 1874.
Shasta in Winter. (Nov. 24.) Dec. 2, 1874.
Shasta Game. (Nov. 29.) Dec. 12, 1874.
Modoc Memories—The Lava Beds. (No date.) Dec. 28, 1874.
Shasta Bees. (Dec. 17, 1874.) Jan 5, 1875.

Second Series—Summering in the Sierra. 11 letters, June-Nov., 1875.

The Summer Flood of Tourists. (June 14.) June 22, 1875.
A Winter Storm in June. (June 17.) June 24, 1875.
In the Sierra Forests. (July ..) Aug. 3, 1875.
The Kings River Yosemite. (Aug. 5.) Aug. 13, 1875.
Ascent of Mount Whitney. (Aug. 17.) Aug. 24, 1875.
From Fort Independence to Yosemite. (Sept. ..) Sept. 15, 1875.
The Fresno Grove of Sequoia. (Sept. ..) Sept. 21, 1875.
The Giant Forest of the Kaweah. (Oct. 19.) Oct. 22, 1875.
[The Southern Limit of the Sequoia. (Oct., 1875) ....]
Tulare Levels. (Oct. 25.) Nov. 17, 1875.
South Dome. (Nov. 10.) Nov. 18, 1875.

Third Series—Summering in the Sierra; Second Season. 5 letters, July-September, 1876.

The Calaveras Sequoias. (July 13.) July 20, 1876.
Ancient River Channels. (July 17.) July 26, 1876.
Sierra Caves. (Aug. 6.) Aug. 12, 1876.
Yosemite Tourists. (Aug. 20.) Aug. 24, 1876.
The Summit of South Dome. (Aug. 28.) Sept. 6, 1876.

Fourth Series, A.—Notes from Utah. 4 letters, May-July, 1877.

The City of the Saints. (May 15.) May 22, 1877.
A Great Storm in the Basin of Salt Lake. (May 19.) May 25, 1877.
Bathing in Salt Lake. (May 20.) June 14, 1877.
Mormon Lilies. (July ..) July 19, 1877.

B.—Semi-tropical California. 2 letters, September, 1877.

San Gabriel Valley (Sept. 1.) Sept. 7, 1877.
In the San Gabriel Mountains. (No date.) Sept. 11, 1877.

Fifth Series—Nevada. 5 letters, October, 1878; January, 1879.

Nevada Farms. (Oct. ..) Oct. 5, 1878.
Nevada Forests. (Oct. 22.) Oct. 31, 1878.
Nevada's Timber Belt. (Oct. 20.) Nov. 19, 1878.
Glacial Phenomena of the Great Basin. (Nov. 28.) Dec. 5, 1878.
Nevada's Dead Towns. (No date.) Jan. 15, 1879.

Sixth Series—Notes of a Naturalist. 11 letters, Aug., 1879; January, 1880.

Sea Voyage—British Columbia. (June 25.) Aug. 27, 1879.
Puget Sound. (June 28.) Aug. 29, 1879.
Fort Wrangel. (Aug. 8.) Sept. 6, 1879.
Alaska Glaciers, I. (Sept. 5.) Sept. 23, 1879.
Alaska Glaciers, II. (Sept. 7.) Sept. 27, 1879.
Alaska Coast Scenery. (Sept. 25.) Oct. 29, 1879.
Alaska Forests. (Oct. 3.) Oct. 30, 1879.
A Deserted Indian Village. (Oct. 12.) Nov. 1, 1879.
Alaska Climate. (Oct. 16.) Nov. 8, 1879.
Alaska Goldfields. (Dec. 22, 1879.) Jan. 10, 1880.
Alaska Rivers. (Dec. 27, 1879.) Jan. 20, 1880.

Seventh Series—Alaska Land. 6 (or 8?) letters. September-November, 1880.

Canoe Voyage Among Islands and Icebergs. (Aug. 18.) Sept. 25, 1880.
Sum Dum Bay. (Aug. 22.) Oct. 7, 1880.

An Eventful Day. (Aug. 14.) Oct. 9, 1880.
[Sum Dum Bay: Exploring Right Fork. (Aug. 1880.) ....]
An Alaska Yosemite. (Aug. 20.) Oct. 16, 1880.
[Right Arm of Sum Dum. (Aug. 1880.) ....]
Among the Glaciers and Bergs of Sum Dum Bay. (Aug. 22.) Oct. 23, 1880.
Taku Fiords and Glaciers. (Aug. 24.) Nov. 13, 1880.

Eighth Series—Cruise of the "Corwin." 21 letters. June-October, 1881.

At Ounalaska. (May 18.) June 20, 1881.
At St. Paul. (May 23.) July 13, 1881.
On the Siberian Coast. (May 31.) July 13, 1881.
Pushing Northwestward. (June 2.) July 13, 1881.
Weathering a Gale in St. Laurence Bay. (June 6.) July 13, 1881.
Dodging the Ice. (June 15.) July 13, 1881.
The Aleutian Islands. (May 21.) July 25, 1881.
Wreck of the "Vigilant." (June 29.) Aug. 15, 1881.
St. Laurence Island. (July 2.) Aug. 15, 1881.
Return to St. Michael's. (July 8.) Aug. 15, 1881.
At St. Michael's. (June 20.) Aug. 16, 1881.
At Metchigme Bay. (June 27.) Aug. 16, 1881.
At East Cape. (July 1.) Aug. 16, 1881.
Herald Island. (July 31.) Sept. 28, 1881.
Wrangel Land. (Aug. 16.) Sept. 29, 1881.
On Wrangel Land. (Aug. 17.) Oct. 22, 1881.
Perils of Whaling. (Aug. 18.) Oct. 24, 1881.
Arctic Coal Mines—The Diomede Bay Islands. (Aug. 25.) Oct. 25, 1881.
In Plover Bay—Reindeer. (Aug. 26.) Oct. 26, 1881.
An Ice-bound Shore. (Sept. 3.) Oct. 27, 1881.
Homeward Bound. (Oct. 4.) Oct. 31, 1881.

Ninth Series—3 letters from the Yosemite Region. June, 1889.

The Snow in the High Sierra. (No date.) June 22, 1889.
Yosemite Valley in Early Summer. (June 21.) June 27, 1889.
Forests of the Sierra. (No date.) June 29, 1889.

III. Occasional Letters

* Calypso Borealis. *Boston Recorder,* ...., 1865.
Yosemite Glaciers. Their Progress and Present Condition. *N.Y. Tribune* (Sept. 28, 1871), Dec. 5, 1871.
God's First Temples: How Shall We Preserve Our Forests? *Sacramento Record-Union,* Feb. 5, 1876.
Notes from Shasta. San Francisco *Bulletin.* (Sept. 10.) Sept. 12, 1877.
Lake Tahoe in Winter. San Francisco *Bulletin.* (No date.) April 3, 1878.
* Biographical Sketch of Daniel Muir. Portage (Wis.) *Record,* Oct. 1885.
The Yellowstone Park, San Francisco *Bulletin,* (Oct. 19.) Oct. 27, 1885.
Alaska Passes. San Francisco *Examiner,* Oct. 1, 1887.

IV. Book Reviews

Reminiscences of Scotch Life and Character, by Dean Ramsay. San Francisco *Bulletin,* April 20, 1878.
[Life of Robert Dick. San Francisco *Bulletin,* (April 20, 1878) ....]
Socialism, with Preludes on Current Events, by Joseph Cook. Aug. 21, 1880.

MUIR LODGE—AN APPRECIATION

By Mary Frances Kellogg

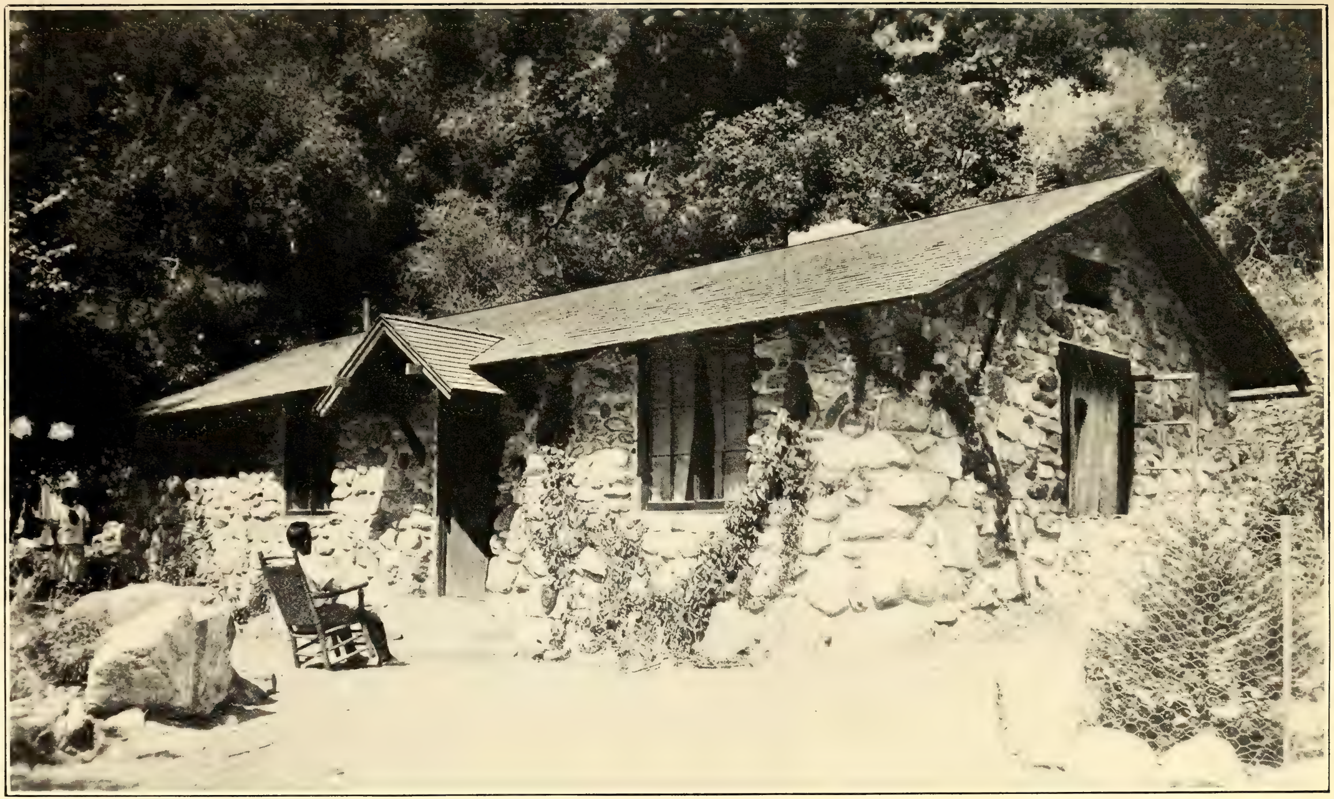
Of the worship due our western mountains, not a tithe has been paid. Nor does the finest homage come from tourists poured into resorts by swarming cities, but from the winnowed few who behold the snow-girdled peaks, the innumerable mountain lakelets and the myriads of flower-enameled, fern-brocaded meadows circled by majestic sequoias. And how many of these elect were imbued with enthusiasm by John Muir's matchless word-pictures! This above all is both his legacy to us and his own crown of glory—to have taught us his beauty-lore.

So John Muir has no need of a memorial. Rather do we long to express, though never so inadequately, the thanks we owe him. From magnificent glaciers, and forests, and mountains, even down to our own modest mountain home, all borrow honor from his name.

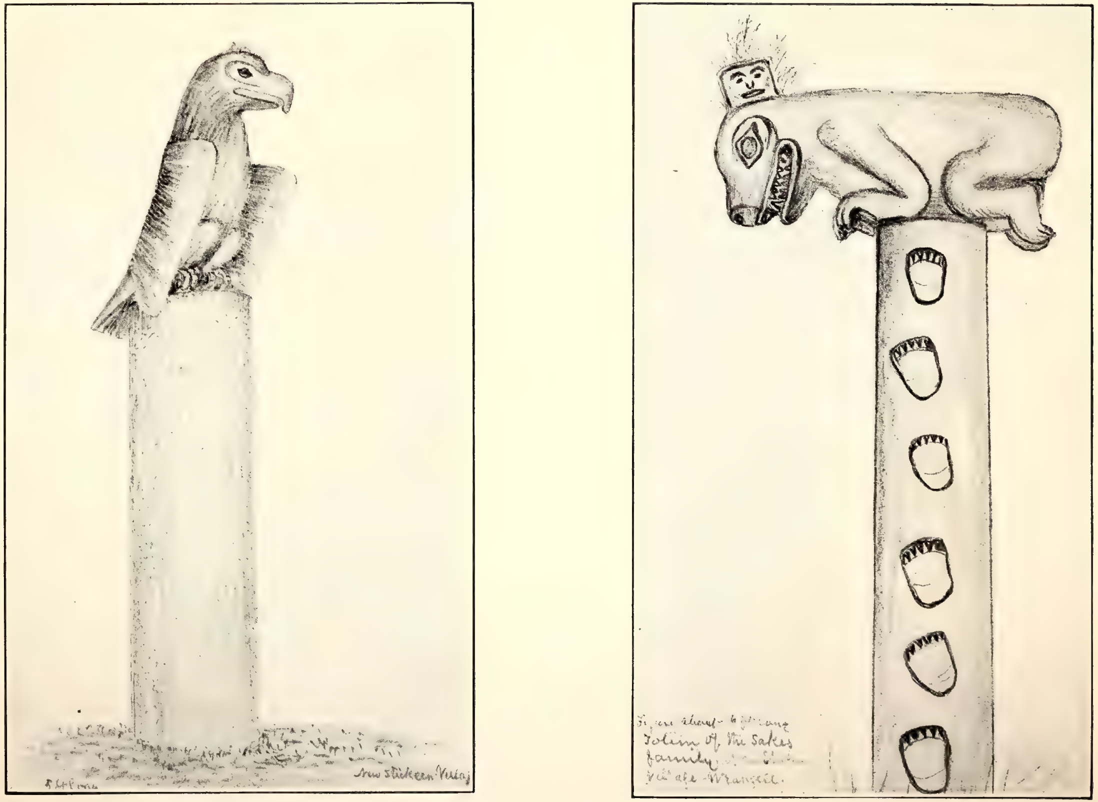
If that which is essentially material; if that which makes easeful the mountaineer's toil; if that which cements friendships of the out-of-doors—if such may stand as an appreciation of one so predominantly of the spirit, who shunned no privation or hardship if it brought him into harmony with wildness, whose feet wandered so much alone and whose passionate search for understanding of the sculpturing of the ages found so few kindred souls—then Muir Lodge is, as intended, an appreciation of John Muir. Though he walked alone, he valued friendship as one of the finest of mortal possessions.

Muir Lodge is a brief home for the wayfarer, ever urging beyond—on—on, up the wonder-trails leading over the heights and far within the mountain barriers. In its simple plainness it is appropriate. No complications of thought, language or character were his. All his life was as openly inspiring as one of his own books.

John Muir could teach us because, like all great men, he exemplified a singleness of purpose—a perfect absorption in that to which he was dedicated. Because he himself reverently



MUIR LODGE


New Stickeen Villag
[illegible] about [illegible]
Totem of the Sakes
family [illegible]
Village Wrangell.

PENCIL SKETCHES OF TOTEMS FROM THE NEW STICKEEN VILLAGE
FROM JOHN MUIR'S ALASKA NOTEBOOKS

adored, he was able to give to us something of the majesty of the mountains, the glory of the glaciers, the records of the rocks, the teachings of the trees, the songs of the streams, the friendliness of the flowers. Material as these things are they roused in John Muir a very white heat of devotion—a devotion his writings breathe in every line. John Muir's lofty worship, which thanked God for every good day and each bit of loveliness, must have been most acceptable to the Maker of the Universe, who saw that His works were good. Here is a man we may delight to honor. How the memory of him steadies us when our own understanding of essentials becomes warped.

The first time I ever saw John Muir he spoke of his intention to build some day a home close under the Sierra Madre Mountains. He often later spoke of this longing. And though it was never our good fortune to have him dwelling among us, yet in Muir Lodge we have a sort of shrine for his spirit, where none may sojourn without receiving the benediction of the mountains, which John Muir, more than any other, taught us to know aright. On the wall his pictured face first greets the entering guest.

Such a true, simple heart could not fail to love to be loved. At the time of the dedication of Muir Lodge, he wrote, "I'm very glad to get the picture of the fine Muir Lodge. It's pleasant to be remembered in this way in the midst of this long-drawn-out battle for our national parks."

STUDIES IN THE SIERRA*

BY JOHN MUIR

◆

NO. II. MOUNTAIN SCULPTURE, ORIGIN OF YOSEMITE VALLEYS

All the valleys and cañons of the western flank of the Sierra, between 36° and 39° north latitude, naturally classify themselves under two genera, each containing two species. One genus comprehends all the slate valleys, the other all that are built of granite. The latter is far the more important, both on account of the greater extent of its geographical range and the grandeur and simplicity of its phenomena. All the valleys of both genera are valleys of erosion. Their chief distinguishing characteristics may be seen in the following descriptions:

SLATE VALLEYS

1. Cross-sections, V-shaped, or somewhat rounded at bottom, *walls irregular in structure,* shattered and weak in appearance, because of the development of slaty cleavage planes and joints, which also prevent the formation of plane-faced precipices. Bottom showing the naked bed-rock, or covered by rocky debris, and sloping in the direction of the trend. Nearly all of the foothill valleys belong to this species. Some of the older specimens are smoothly covered with soil, but *meadows and lakes are always wanting.*

2. More or less widened, *branching at the head.* Bottom, with meadows, or groves, or lakelets, or all together. Sections and walls about as in No. 1. Fine examples of this species occur on the head-waters of the San Joaquin.

GRANITE VALLEYS

1. Cross-sections narrowly or widely V-shaped. Walls seldom interrupted by side cañons, magnificently simple in structure and general surface character, and presenting plane precipices in great abundance. Bottom sloping in the direction of the trend,

---

* Reprinted from the *Overland Monthly* of June, 1874. This is the second of a series of seven studies in which Mr. Muir developed his theories of the geology of the Sierra.—*Editor.*

mostly bare, or covered with unstratified glacial and avalanche bowlders. Groves and meadows wanting.

2. *Branching at head, with beveled and heavily abraded lips at foot.* Bottom *level,* meadowed, laked, or groved. Walls usually very high, often interrupted by side cañons. Sections as in No. 1. To this species belongs the far-famed *Yosemite** whose origin we will now discuss.

Yosemite Valley is on the main Merced, in the middle region of the range. It is about seven miles long from east to west, with an average width at bottom of a little more than half a mile, and at the top of a mile and a half. The elevation of the bottom above sea level is about 4,000 feet. The average height of the walls is about 3,000 feet, made up of a series of sublime rock forms, varying greatly in size and structure, partially separated from one another by small side cañons. These immense wall-rocks, ranged picturesquely together, do not stand in line. Some advance their sublime fronts far out into the open valley, others recede. A few are nearly vertical, but far the greater number are inclined at angles ranging from twenty to seventy degrees. The meadows and sandy flats outspread between support a luxuriant growth of sedges and ferns, interrupted with thickets of azalea, willow and brier-rose. The warmer sloping ground along the base of the walls is planted with noble pines and oaks, while countless alpine flowers fringe the deep and dark side cañons, through which glad streams descend in falls and cascades, on their way from the high fountains to join the river. The life-giving Merced flows down the valley with a slow, stately current, curving hither and thither through garden and grove, bright and pure as the snow of its fountains. Such is Yosemite, the noblest of Sierra temples, everywhere expressing the working of Divine harmonious law, yet so little understood that it has been regarded as "an exceptional creation," or rather *exceptional destruction* accomplished by violent and mysterious forces. The argument advanced to support this view is substantially as follows: It is too wide for a water-eroded valley, too irregular for a fissure valley, and too angular and local for a primary valley originating in a fold of the mountain surface during the process of upheaval; therefore, a portion of the mountain bottom must have suddenly fallen out, letting the superincumbent domes and peaks fall rumbling into the abyss, like coal into the bunker of a ship. This violent hypothesis, which furnishes a kind of Tophet for the reception of bad mountains, commends itself to the favor of many, by seeming to account for the remarkable sheerness and angularity of the walls, and by its marvelousness and obscurity, calling for no investigation, but rather discouraging it. Because we can not observe the bed-rock to ascertain whether or not it is fractured, this engulfment hypothesis seems to rest safely under cover of darkness, yet a film of lake gravel and a meadow blanket are its only concealments, and, by comparison with exposed sections in other Yosemites where the sheer walls unite with the solid, unfissured bottom, even these are in effect removed. It becomes manifest, by a slight attention to facts, that the hypothetical subsidence must have been limited to the valley proper, because both at the head and foot we find the solid bed-rock.

---

* We will henceforth make use of the word Yosemite both as a specific and geographical term.

The breaking down of only one small portion of the mountain floor, leaving all adjacent to it undisturbed, would necessarily give rise to a very strongly marked line of demarcation, but no such line appears; on the contrary, the unchanged walls are continued indefinitely, up and down the river cañon, and lose their distinguishing characteristics in a gradual manner easily accounted for by changes in the structure of the rocks and lack of concentration of the glacial energy expended upon them. That there is comparatively so small a quantity of debris at the foot of Yosemite walls is advanced as an argument in favor of subsidence, on the grounds that the valley is very old, and that a vast quantity of debris must, therefore, have fallen from the walls by atmospheric agencies, and that the hypothetical "abyss" was exactly required to furnish storage for it. But the Yosemite Valley is not very old. It is very young, and no vast quantity of debris has ever fallen from its walls. Therefore, no abyss was required for its accommodation.

If, in accordance with the hypothesis, Yosemite is the only valley furnished with an abyss for the reception of debris, then we might expect to find all abyssless valleys choked up with the great quantity assumed to have fallen; but, on the contrary, we find their debris in the same condition as in Yosemite, and not more abundant. Indeed, in some portions of valleys as deep and sheer as Yosemite there is absolutely no talus, and that there never has been any is proved by both walls and bottom being *solid and ice-polished.* Many examples illustrative of this truth may be seen in the great Tuolumne and Kings River valleys.

Where the granite of Yosemite walls is intersected with feldspathic veins, as in the lowest of the Three Brothers and rocks near Cathedral Spires, large masses are loosened, from time to time, by the action of the atmosphere, and hurled to the bottom with such violence as to shake the whole valley; but the aggregate quantity which has been thus weathered off, so far from being sufficient to fill any great abyss, *forms but a small part of the debris slopes actually found on the surface,* all the larger angular taluses having been formed simultaneously by severe earthquake shocks that occurred three or four hundred years ago, as shown by their forms and the trees growing upon them. The attentive observer will perceive that *wherever a large talus occurs, the wall immediately above it presents a scarred and shattered surface* whose area is always proportional to the size of the talus, but *where there is no talus the wall is invariably moutonée or striated,* showing that it is young and has suffered little change since it came to light at the close of the glacial period. On the 23rd of March, 1872, I was so fortunate as to witness the sudden formation of one of these interesting taluses by the precipitation of the Yosemite Eagle Rock by the first heavy shock of the Inyo earthquake, whereby their local character and simultaneity of formation was fully accounted for. This *new earthquake* gave rise to the formation of many *new taluses* throughout the adjacent valleys, corresponding in every particular with the older and larger ones whose history we have been considering.

As to the important question, What part may water have played in the formation of Sierra valleys? we observe that, as far as Yosemite is concerned, the five large streams which flow through it are universally engaged in the work of *filling it up.* The granite of the region under consideration is but slightly susceptible of water denudation. Throughout the greater portion of the main upper Merced Valley the river has not eroded its channel to a depth exceeding three feet since it first began to flow at the close of the glacial epoch, although acting under every advantage of concentration and quick descent. The highest flood-mark the young river has yet recorded upon the clean glacial tablets of its banks is only seven or eight feet above the present level, at ordinary stages. Nevertheless, the aggregate annual quantity that formerly passed down these cañon valleys was undoubtedly far greater than passes at the present time, because on the gradual recession of the glaciers at the close of the period, the supply would necessarily be more constant, from their melting all through the seasons. The evidence, however, is incontestable, which shows that the highest floods of Sierra rivers in the upper and middle regions of the range never much exceeded those of the present time.

Five immense glaciers from five to fifteen hundred feet in depth poured their icy floods into Yosemite, uniting to form one huge trunk, moved down through the valley with irresistible and never-ceasing energy, crushing and breaking up its strongest rocks, and scattering them in moraines far and near. Many, while admitting the possibility of ice having been the great agent in the production of Yosemite valleys, conjecture that earthquake fissures, or cracks from cooling or upheaval of the earth's crust, were required to enable the glaciers to make a beginning and to guide them in the work. We have already shown ("Studies in the Sierra," in *Overland* for May*) that cleavage planes and joints exist in a latent or developed condition in all the granite of the region, and that these exert immense influence on its glacial erodibility. During five years' observation in the Sierra, I have failed to discover a single fissure of any kind, although extensive areas of clean-swept glacial pavements afford ample opportunity for their detection, did they exist. Deep slots, with regular walls, appearing as if sawed, or mortised, frequently occur. These are formed by the disintegration of soft seams a few inches or feet in thickness, contained between walls of stronger granite. Such is the character of the so-called fissure said to exist in a hard portion of the south wall of Yosemite, opposite the Three Brothers, so frequently quoted in speculations upon the valley's origin.

---

* Reprinted in SIERRA CLUB BULLETIN, Vol. IX, No. 4, January, 1915.

The greatest effects of earthquakes on the valley we have already noticed in avalanche taluses, which were formed by the precipitation of weak headlands, that fell like ripe fruit. The greatest obstacle in the way of reading the history of Yosemite valleys is not its complexity or obscurity, but simply the *magnitude of the characters* in which it is written. It would require years of enthusiastic study to master the English alphabet if it were carved upon the flank of the Sierra in letters sixty or seventy miles long, their bases set in the foothills, their tops leaning back among the glaciers and shattered peaks of the summit, often veiled with forests and thickets, and their continuity often broken by cross-gorges and hills. So also the sculptured alphabet cañons of the Sierra are magnificently simple, yet demand years of laborious research for their apprehension. A thousand blurred fragments must be conned and brooded over with studious care, and kept vital and formative on the edges, ready to knit like broken living bones, while a final judgment is being bravely withheld until the entire series of phenomena has been weighed and referred to an all-unifying, all-explaining law. To one who can leisurely contemplate Yosemite from some commanding outlook, it offers, as a whole, a far more natural combination of features than is at all apparent in partial views obtained from the bottom. Its stupendous domes and battlements blend together and manifest delicate compliance to law, for the mind is then in some measure emancipated from the repressive and enslaving effects of their separate magnitudes, and gradually rises to a comprehension of their unity and of the poised harmony of their general relations.

Nature is not so poor as to possess only one of anything, nor throughout her varied realms has she ever been known to offer an exceptional creation, whether of mountain or valley. When, therefore, we explore the adjacent Sierra, we are not astonished to find that there are many Yosemite valleys identical in general characters, each presenting on a varying scale the same species of mural precipices, level meadows, and lofty waterfalls. The laws which preside over their distribution are as constant and apparent as those governing the distribution of forest trees. They occur only in the middle region of the chain, where the declivity is considerable and where the granite is Yosemitic in its internal structure. The position of each valley upon the Yosemitic zone indicates a marked and inseparable relation to the ancient glaciers, which, when fully deciphered, amounts to cause and effect. So constant and obvious is this connection between the various Yosemites and the *névé* amphitheatres which fountained the ancient ice-rivers, that an observer, inexperienced in these phenomena, might easily anticipate the position and size of any Yosemite by a study of the glacial fountains above it, or the position and size of the fountains by a study of their complementary Yosemite. *All Yosemites occur at the junction of two or more glacial cañons.* Thus the greater and lesser Yosemites of the Merced, Hetch Hetchy, and those of the upper Tuolumne, those of Kings River, and the San Joaquin, all occur immediately below the confluences of their ancient glaciers. If, in following down the cañon channel of the Merced Glacier, from its origin in the *névé* amphitheatres of the Lyell group, we should find that its sudden expansion and deepening at Yosemite occurs without a corresponding union of glacial tributary cañons, and without any similar expansion elsewhere, then we might well be driven to the doctrine of special marvels. But this emphatic deepening and widening becomes harmonious when we observe smaller Yosemites occurring at intervals all the way down, across the Yosemitic zone, *wherever a tributary cañon unites with the trunk,* until, on reaching Yosemite, where the enlargement is greatest, we find the number of confluent glacier-cañons is also greatest, as may be observed by reference to Fig. 1. Still further, the aggregate areas of their cross-sections is approximately equal to the area of the cross-sections of the several resulting Yosemites, just as the cross-section of a tree trunk is about equal to the sum of the sections of its branches. *Furthermore, the trend of Yosemite valleys is always a direct resultant of the sizes, directions, and declivities of their confluent cañons,* modified by peculiarities of structure in their rocks. Now, all the cañons mentioned above are the abandoned channels of glaciers; therefore, these Yosemites and their glaciers are inseparably related. Instead of being local in character, or formed by obscure and lawless forces, *these valleys are the only great sculpture phenomena whose existence and exact positions we may confidently anticipate.*

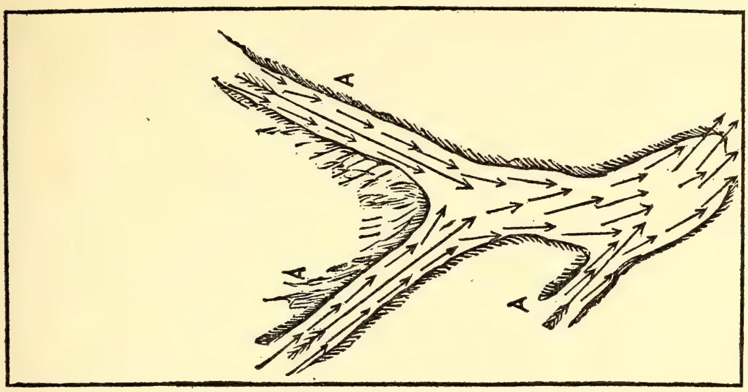


Fig. 1.—Tuolumne Yosemite. (A A A, Glaciers.)

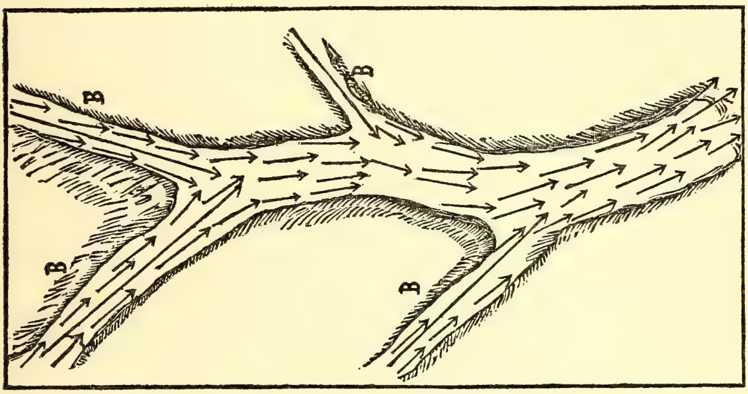


Fig. 2.—Kings River Yosemite. (B B B B, Glaciers.)

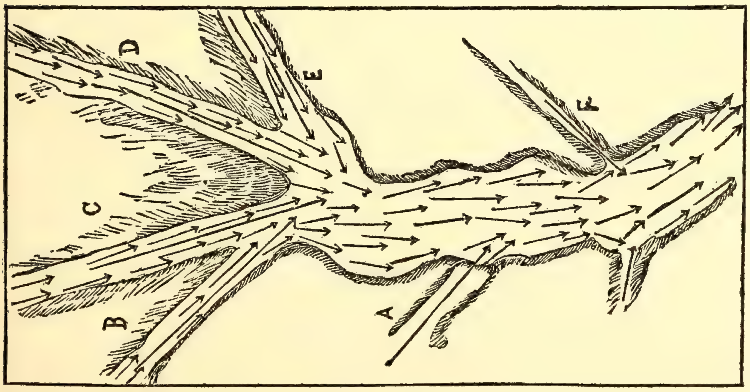


Fig. 3.—Merced Yosemite. (A, Yosemite Creek Glacier; B, Hoffmann Glacier; C, Tenaya Glacier; D, South Lyell Glacier; E, Illilouette Glacier; F, Pohono Glacier

DEPTH OF YOSEMITE

Much stress has been laid on the mere uncompared arithmetical depth of Yosemite, but this is a character of no consequence to the consideration of its origin. The greatest Merced Yosemite is 3,000 feet deep; the Tuolumne, 2,000; another, 1,000; but what geologist would be so unphilosophical as to decide against the identity of their origin from difference in depth only. One pine tree is 100 feet high, lean and crooked, from repressing winds and the poverty of the soil which nourished it; while another, more fortunate in the conditions of its life, is 200 feet high, erect and vigorous. So, also, one Yosemite is 3,000 feet deep because of the favorable structure of its rocks and the depth and number of the ice-rivers that excavated it; another is half as deep, because of the strength of its rocks, or the scantiness of the glacial force exerted upon it. What would be thought of a botanist who should announce that our gigantic *Sequoia* was not a tree at all, offering as a reason that it was too large for a tree, and, in describing it, should confine himself to some particularly knotty portion of the trunk? In Yosemite there is an evergreen oak double the size of ordinary oaks of the region, whose trunk is craggy and angular as the valley itself, and colored like the granite bowlders on which it is growing. At a little distance this trunk would scarcely be recognized as part of a tree, until viewed in relation to its branches, leaves and fruit. It is an admirable type of the craggy Merced cañon-tree, whose angular Yosemite does not appear as a natural portion thereof until viewed in its relations to its wide-spreading branches, with their fruit and foliage of meadow and lake.

We present a ground-plan of three Yosemite valleys, showing the positions of their principal glaciers, and the relation of their trends and areas to them. The large arrows in Figs. 1, 2, 3 show the positions and directions of movement of the main confluent glaciers concerned in the erosion of three Yosemites. With regard to the number of their main glaciers, the Tuolumne Yosemite may be called a Yosemite of the *third* power; the Kings River Yosemite, of the fourth power; and the Merced Yosemite, of the fifth power. The granite in which each of these three Yosemites is excavated is of the same general quality; therefore, the differences of width, depth, and trend observed, are due almost entirely to the number, magnitude, declivity and mode of combination of the glacial system of each. The similarity of their ground-plans is obvious from a single glance at the figures; their cross-sections are no less similar. One of the most characteristic from each of the valleys under consideration is shown in Figs. 4, 5 and 6, drawn on the same scale.

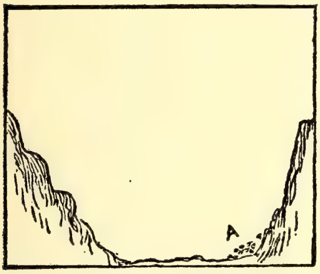


Fig. 4.—Section across the Hetch Hetchy Valley, or lower Tuolumne Yosemite

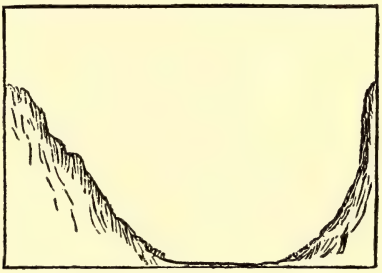


Fig. 5.—Section across the Kings River Yosemite

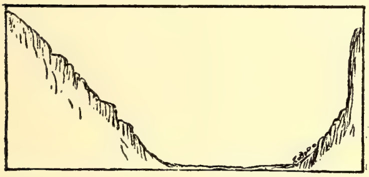


Fig. 6.—Section across Merced Yosemite

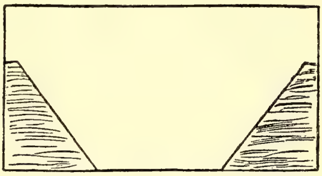


Fig. 7

The perpendicularity of Yosemite walls is apt to be greatly over-estimated. If the slopes of the Merced Yosemite walls were to be carefully measured with a clinometer at intervals of say 100 yards, it would be found that the average angle they make with the horizon is less than 50°, as shown in Fig. 7. It is not possible that the bottom could drop out of a valley thus shaped, no matter how great the upheaval or down-heaval, or side-heaval.

Having shown that Yosemite, so-called, is not unique in its ground-plan or cross-sections, we will now consider some of the most remarkable of its rock forms. The beautiful San Joaquin Dome in the cañon of the San Joaquin, near the confluence of the south fork, looking south (Fig. 9), shows remarkable resemblance to the Yosemite Half Dome, as seen from Tenaya Cañon (Fig. 8). They are similarly situated with reference to the glaciers that denuded them, Half Dome having been assailed by the combined Tenaya and Hoffman glaciers on the one side, and by the South Lyell or Merced Glacier on the other; the San Joaquin Dome, by the combined glaciers of the middle and north forks, on one side, and by the glaciers of the south fork on the other. The split dome of Kings River Yosemite is a worthy counterpart of the great Half Dome of the Merced Yosemite.

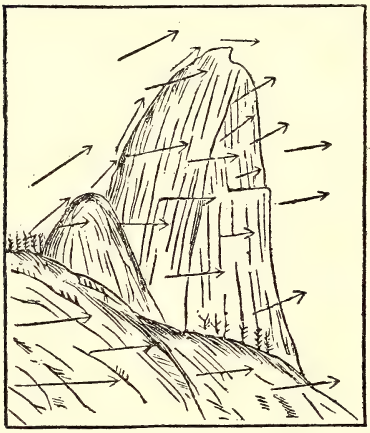


Fig. 8

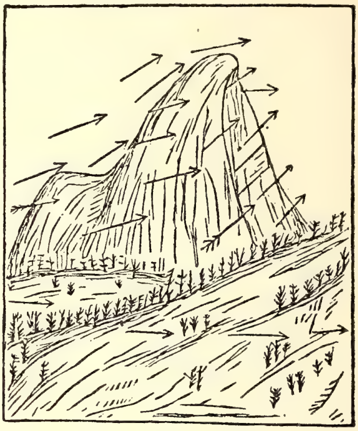


Fig. 9

They occur at about the same elevation, and are similarly situated with reference to the ancient glacial currents, which first overswept them and then glided heavily by on either side, breaking them up in chips and slabs, until fashioned and sculptured to their present condition. The Half Dome is usually regarded as being the most mysterious and unique rock form in the valley, or, indeed, in the world, yet when closely approached and studied, its history becomes plain.

From A to B, Fig. 10, the height is about 1,800 feet; from A to the base, 3,000. The upper portion is almost absolutely plain and vertical, the lower is inclined at an angle with the horizon of about 37°. The observer may ascend from the south side to the shoulder of the dome at D, and descend along the face toward A H. In the notch at F a section of the dome may be seen, showing that it is there made up of immense slabs set on edge. These evidently have been produced by the development of cleavage planes, which, cutting the dome perpendicularly, have determined the plane of its face, which is the most striking char-

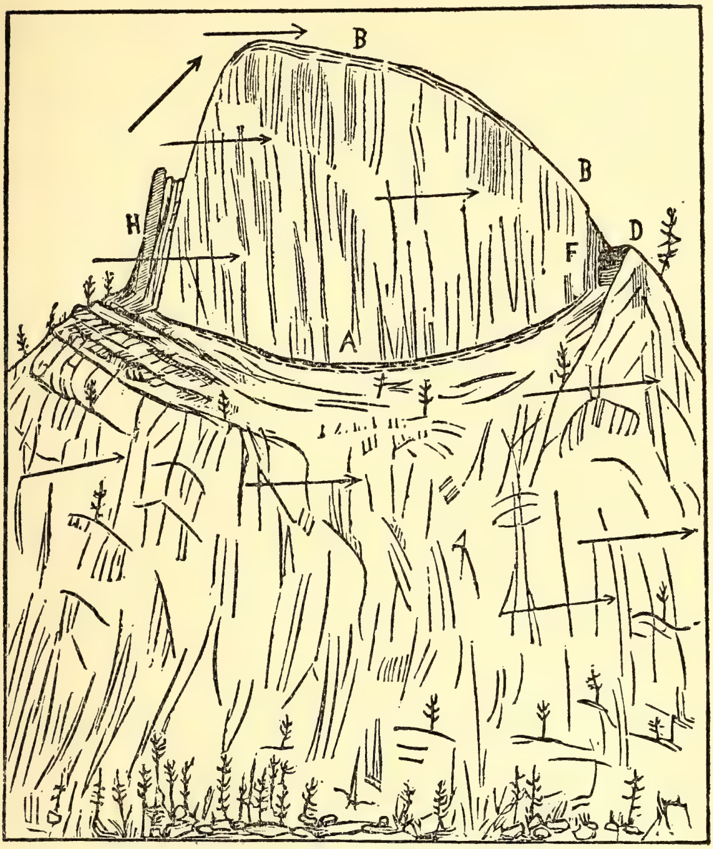


Fig. 10.—North Face of Half Dome, Yosemite Valley

acteristic of the rock. Along the front toward A H may be seen the stumps of slabs which have been successively split off the face. At H may be seen the edges of residual fragments of the same slabs. At the summit we perceive the cut edges of the concentric layers which have given the curved dome outline, B B. At D, a small gable appears, which has been produced by the development of diagonal cleavage planes which have been cut in front by vertical planes. After the passage of the main Tenaya Glacier in the direction of the arrows, small glacierets seem to have flowed down in front, eroding shallow groove channels in the direction of greatest declivity; and even before the total recession of the main glacier a wing-shaped ice-slope probably

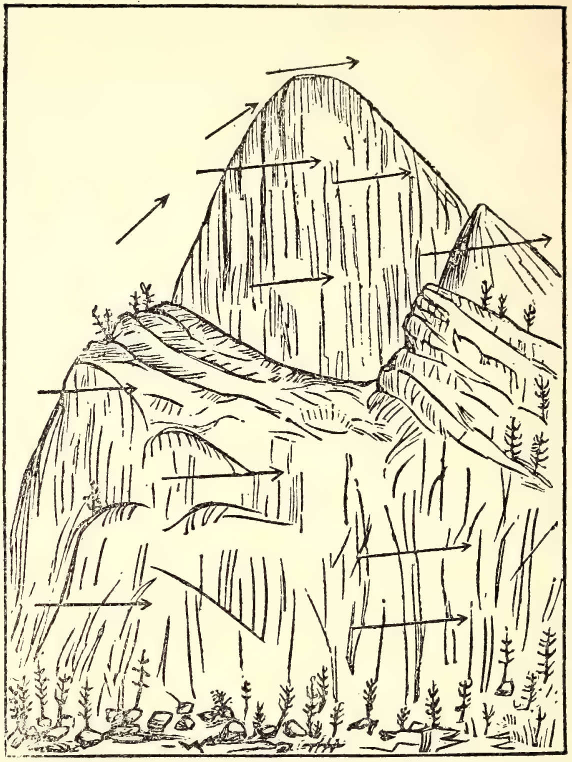


Fig. 11.—North Face of Half Dome of Kings River Yosemite Valley

leaned back in the shadow, and with slow action eroded the upper portion of the dome. All the rocks forming the south walls of deep Yosemite cañons exhibit more or less of this light after-sculpture, effected in the shade after the north sun-beaten rocks were finished.

The south side of the dome has been heavily *moutonée* by the Lyell Glacier, but is, nevertheless, nearly as vertical as the north split side. The main body of the rock corresponds in form and attitude with every other rock similarly situated with reference to ice-rivers, and to elevation above sea level, the special split dome-top being, as we have seen, a result of special structure in the granite out of which it was formed. Numerous examples of this interesting species of rock may be culled from the various Yosemites, illustrating every essential character on a gradually changing scale.

Fig. 12 is a view of the back or south side of Half Dome, Yosemite, showing its *moutonée* condition; Fig. 13 represents El Capitan of Yosemite, situated on the north side of the valley; Fig. 14, El Capitan of Big Tuolumne Cañon, near the middle, situated on the north side; Fig. 15, El Capitan of Big Tuolumne Cañon, near the head, situated on the north side.

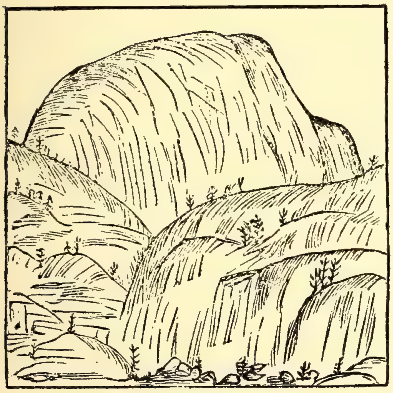


Fig. 12

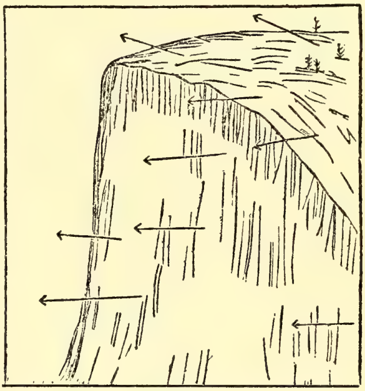


Fig. 13

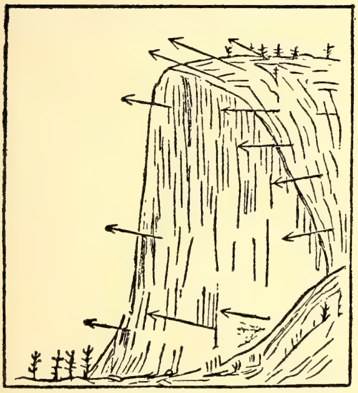


Fig. 14

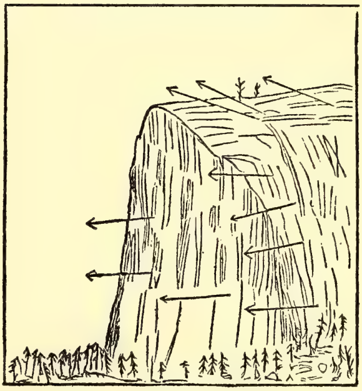


Fig. 15

The far-famed El Capitan rock presents a sheer cleaved front, over three thousand feet high, and is scarcely less impressive than the great dome. We have collected fine specimens of this clearly defined rock form from all the principal Yosemites of the region. Nevertheless, it also has been considered exceptional. Their origin is easily explained. They are simply *split ends of ridges which have been broken through by glaciers.*

For their perfect development the granite must be strong, and have some of its vertical cleavage planes well developed, nearly to the exclusion of all the others, especially of those belonging to the diagonal and horizontal series. A powerful trunk glacier must sweep past in front nearly in the direction of its cutting planes, with small glaciers, tributary to the first, one on each side of the ridge out of which the Capitan is to be made. This arrangement is illustrated in Fig. 16, where A represents a horizontal section of a Capitan rock, exposing the edges of the cleavage planes which determined the character of its face; B, the main glacier sweeping down the valley in front; and C C, the tributaries isolating it from the adjacent softer granite. The three Capitans figured stand thus related to the glaciers of the region where they are found. I have met with many others, all of which are thus situated, though in some instances one or both of the side glaciers had been wanting, leaving the resulting Capitan less perfect, considering the bold advancing Yosemite Capitan as a typical form.

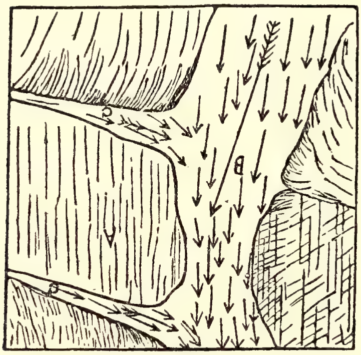


Fig. 16

When the principal surface features of the Sierra were being blocked out, the main ice-sheet was continuous and moved in a southerly direction, therefore the most perfect Capitans are invariably found on the north sides of valleys trending east and west. The reason will be readily perceived by referring to Fig. 8 of No. 1, "Mountain Sculpture," in *Overland* for May.*

To illustrate still further how fully the split fronts of rocks facing deep cañons have the angles at which they stand measured by their cleavage planes, we give two examples (Figs. 17 and 18) of leaning fronts from the cañon of the north fork of the San Joaquin River. Sentinel and Cathedral rocks also are found in other glacial cañons, and in every instance their

---

* Sierra Club Bulletin, Vol. IX, No. 4, page 233.

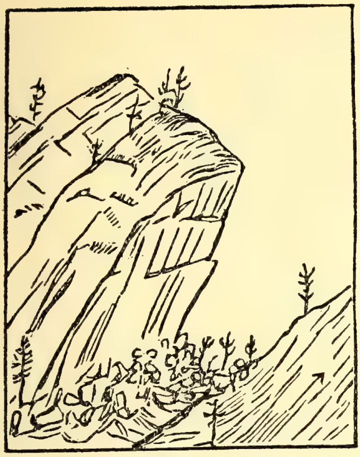


Fig. 17

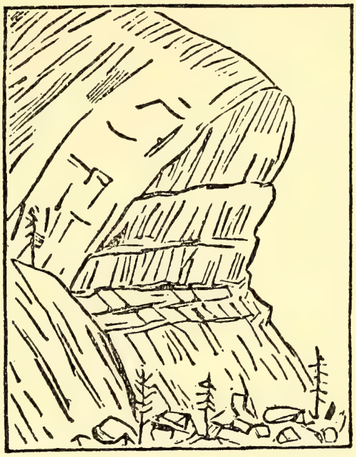


Fig. 18

forms, magnitudes, and positions are obviously the necessary results of the internal structure and general mechanical characters of the rocks out of which they were made, and of the glacial energy that has been brought to bear on them. The abundance, therefore, of lofty angular rocks, instead of rendering Yosemite unique, is the characteristic which unites it most intimately with all the other similarly situated valleys in the range.

SIERRA CLUB

Founded 1892

402 Mills Building, San Francisco, California
Annual Dues: $3.00, (first year $5.00)

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.

◆

John Muir, President 1892 to 1914

OFFICERS AND COMMITTEES FOR THE YEAR 1915-1916

BOARD OF DIRECTORS

Joseph N. Le Conte, Berkeley	*President*
Vernon L. Kellogg, Stanford	*Vice-President*
Marion Randall Parsons, Berkeley	*Treasurer*
William E. Colby, San Francisco	*Secretary*

William F. Badè, Berkeley Charles P. Douglas, San Diego
Walter L. Huber, San Francisco
Vice David P. Barrows, Berkeley, resigned
Robert M. Price, Reno, Nevada Clair S. Tappaan, Los Angeles

HONORARY VICE-PRESIDENTS

Sir James Bryce, London, England
Henry S. Graves, Washington, D. C.
Robert Underwood Johnson, New York City
David Starr Jordan, Stanford University
J. Horace McFarland, Harrisburg, Pa.
Alexander G. McAdie, Harvard University
Enos A. Mills, Estes Park, Colorado

COMMITTEES

Outing Committee: William E. Colby *(Chairman and Manager),* Clair S. Tappaan *(Assistant Manager),* Joseph N. Le Conte.

Committee on Local Walks: J. E. Rother *(Chairman),* George Edwards, Harold French, Fred R. Parker.

Le Conte Memorial Lodge Committee: Marion Randall Parsons *(Chairman),* Joseph N. Le Conte, Robert M. Price.

Librarian: Nell L. Taggard.

Southern California Section Executive Committee: Everett Shepardson *(Chairman),* Charles J. Fox *(Treasurer),* Phil S. Bernays *(Secretary,* 318 W. Third Street, Los Angeles), Hiram E. Bailey, Charles P. Douglas, Mary F. Kellogg, Mabelle McCalla A. Martha Walker, George A. White.

◆

SIERRA CLUB BULLETIN

Published annually for the members

EDITORIAL BOARD

William F. Badè	*Editor*
William E. Colby	*Notes and Correspondence*
Marion Randall Parsons	*Book Reviews*
Walter L. Huber	*Forestry Notes*

Albert H. Allen, Francis P. Farquhar,
William T. Goldsborough, Joseph N. Le Conte,
Elliott McAllister

EDITORIALS

The Presidency of the Club Since the organization of the Sierra Club in eighteen hundred and ninety-two there has been but one President—John Muir. A year ago his death left vacant the office which he filled so long and so ably. Professor J. N. Le Conte has been chosen by the Board of Directors to serve as his successor. There is fitness in this choice. The files of the Sierra Club Bulletin bear distinguished testimony to his work as a mountaineer and explorer of the Sierra Nevada. Of the present Board of Directors he is the one who has seen the longest term of service. He was one of the charter members of the Sierra Club, together with his father, Joseph Le Conte. who was in his day the most distinguished geologist of the Pacific Coast. In the office of treasurer, to which Mr. Le Conte was elected in eighteen hundred and ninety-nine, he is now succeeded by Mrs. Marion Randall Parsons.

W. F. B.

John Muir and James Bryce Members of the Sierra Club will read with pride and pleasure the fine tribute paid to our late President, John Muir, by the distinguished author, diplomat and fellow mountaineer, Sir James Bryce. In his letter to the Editor, Dr. Bryce refers to his meeting with Mr. Muir on the occasion of a dinner given by the Directors of the Club in the autumn of 1912. "It was a very great pleasure to me," he writes, "to have had that talk with him and the rest of your party on that evening in San Francisco when I was returning from Australia. . . . How often since have I thought of it and wished that your city was not seven thousand miles from here! It is a pleasure to think that our friend's name and services to the world will be commemorated by those superb woods on the slope of Tamalpais which are called after him." Dr. Bryce was President of the British Alpine Club from 1899 to 1901.

W. F. B.

Mountaineering and the War From the wide-spread ruin wrought by the great European war, mountaineering clubs, also, have not been exempt. Although the famous Swiss Alpine Club had an accession of over a thousand members during the past year, its treasury has become so depleted that very little could be done to establish new alpine cabins or to repair old ones. There was found to be a deficit at the end of the year, and for the first time in nearly fifty years no "Year Book" is to be published.

The Alpine Clubs of Great Britain, France, Italy, Germany and Austria are prostrated by the scourge of war, and their memberships will be found sadly depleted when it finally ends. For most of the mountain regiments of the various combatants were in considerable part composed of alpinists. Foremost among the Italian army leaders stands the Duke of Abruzzi, Prince Luigi Amadeo, who has an enviable record of exploration and first ascents. Eighty-two members of the British Alpine Club are now at the front, and six have been killed in action. W. F. B.

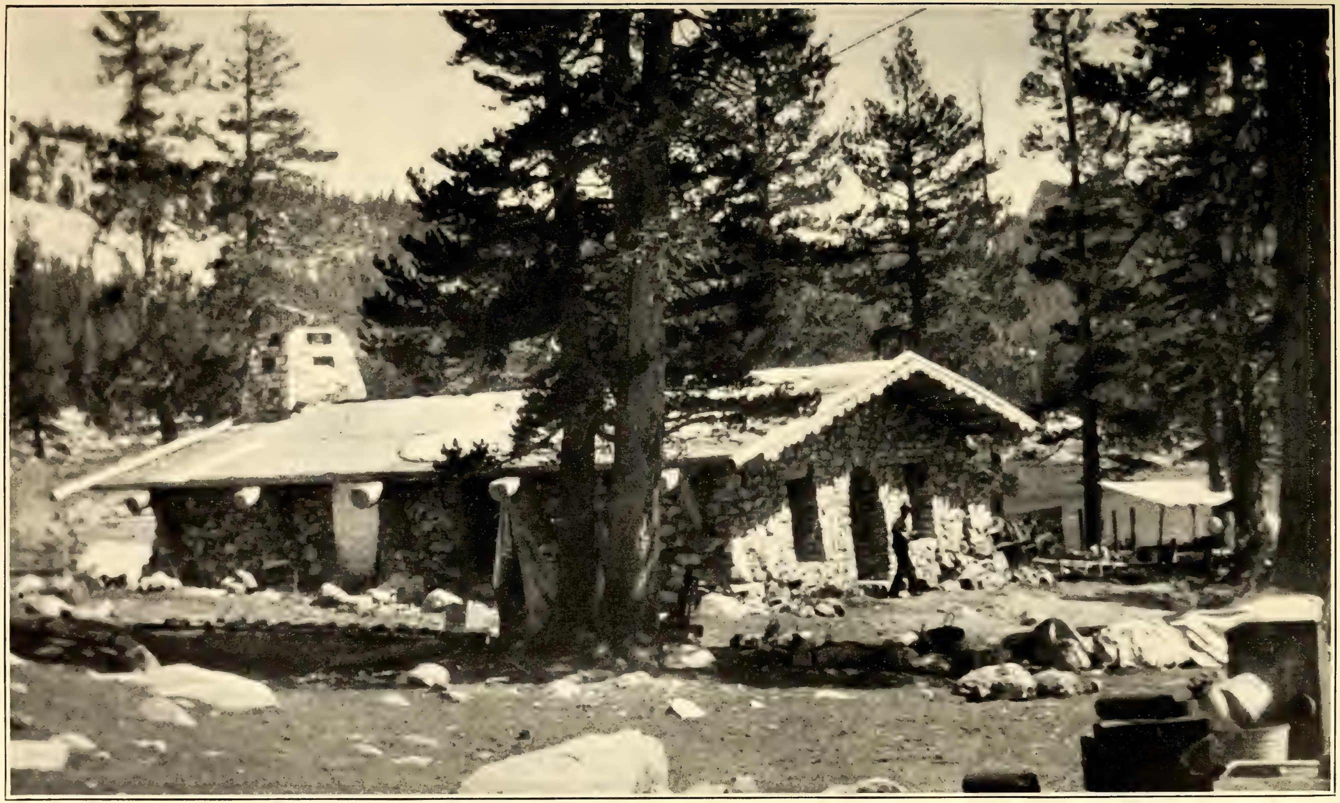
NATURAL HISTORY SURVEY OF YOSEMITE NATIONAL PARK

In a previous BULLETIN we have called attention to a natural history survey of Yosemite National Park which has been undertaken by the Museum of Vertebrate Zoology of the University of California. The Sierra Club has a deep interest in the completion of this survey and has sought to encourage it both officially and through assistance rendered by individual members. It is gratifying to learn from Director Joseph Grinnell that a large amount of material and data have been gathered which will be utilized in the preparation of the following separate reports: "(1) a technical paper on the systematic status and relationships of the lesser known vertebrate species of the region; (2) a scientific treatise on the problems in animal distribution brought to light by the field explorations; and (3) a semi-popular account, in book form, of the natural history of the birds, mammals, reptiles and amphibians of the Yosemite region, to be illustrated, and to include a discussion of animal life as an asset of National Parks." Members of the Club and all who go into the High Sierra have a natural interest in the only poisonous reptile of the region. It is known that rattlesnakes do not occur in the higher parts of the Sierra Nevada, but it is very desirable that a map be prepared for publication showing accurately their range in the Yosemite Park. To this end members of the Sierra Club and others who have been in the Yosemite National Park are invited to report all their encounters with rattlesnakes, giving exact locality, altitude, date, and any exceptional circumstances. This information should be sent to Director Joseph Grinnell at the University of California. W. F. B.

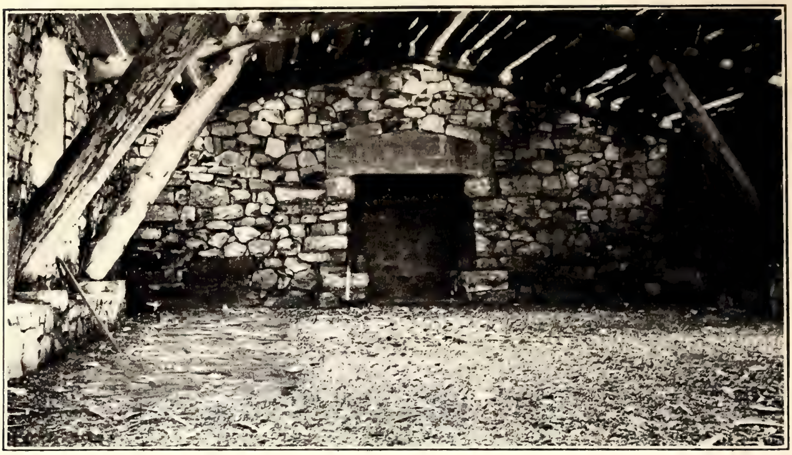
NATIONAL PARK AFFAIRS

Every one who has the welfare of the national parks at heart should "put his shoulder to the wheel" and help to pass the bill now pending before Congress and providing for a national park service. Practically every one is agreed that this is eminently desirable, but Congressmen must be impressed with its importance. Therefore, let each one write to as many Senators and Representatives as possible, and especially to those of his own district, urging the importance of passing such a measure. Do it now before the inclination is forgotten, for here is a chance to help materially. The terms of the bill are to be found in Notes and Correspondence of this issue.

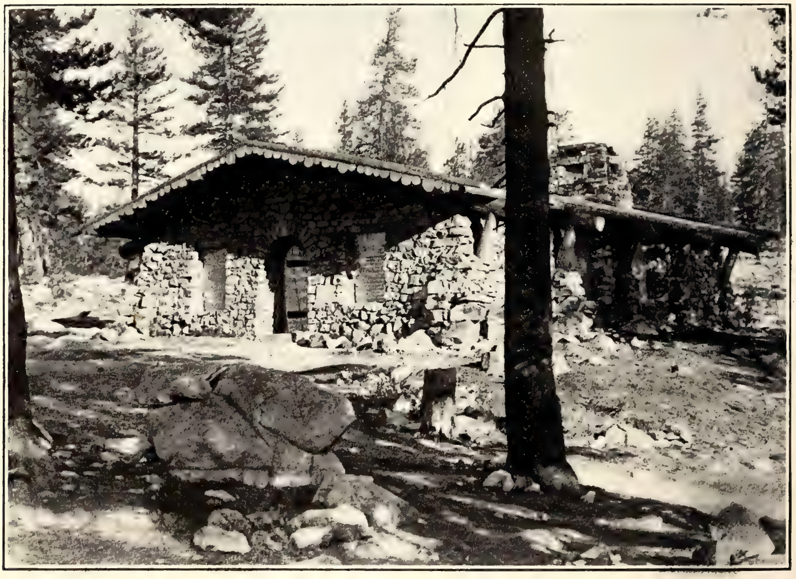
The good work inaugurated by Stephen T. Mather as assistant to the Secretary of the Interior, goes on. His task has been a monumental one.



THE PARSONS MEMORIAL LODGE, TUOLUMNE MEADOWS
Photo by Raymond H. Bailey



INTERIOR OF PARSONS MEMORIAL LODGE DURING CONSTRUCTION
Photo by Marion Randall Parsons



PARSONS MEMORIAL LODGE, CLOSED FOR THE WINTER
Photo by Tracey I. Storer

To bring order out of chaos and place the control and administration of all the national parks on a firm working basis is no small undertaking, especially when the red tape of Washington makes difficult even simple innovations. Mr. Mather has kindly consented to tell us elsewhere in this issue something of what he has done and is trying to do, but only those who have followed his work closely realize how much he has accomplished and how hopeful he is making the future outlook for the parks. We owe it to him and the private sacrifice he is making to carry on this work, to do all we can to pass the National Park Service Bill, and thus perpetuate this unification of management which he is building up and which may all be lost later on without such an established service.

As another step in the right direction, we note with profound satisfaction the appointment of Robert Bradford Marshall as General Superintendent of National Parks. Mr. Marshall succeeds Mr. Mark Daniels, who during his term of office accomplished much good in the way of suggesting plans for harmonious structures within the parks and the laying out of roads with the best landscape ideas in mind. The pressure of private engineering practice compelled Mr. Daniels to tender his resignation. Mr. Marshall brings to this work unusual qualifications and sympathetic understanding. He has either personally mapped or supervised the mapping of all of the parks and has visited them frequently in the past. He was Chief Geographer of the Geological Survey at the time of his appointment, and unquestionably his highest indorsement is to be found in one of John Muir's letters to the Secretary of the Club when he says: "I'm delighted we are to see Marshall. The best fellow of them all."

A bill is pending in Congress for the creation of a national park embracing the Grand Cañon of the Colorado, which all agree should be done. Another bill providing for the enlargement of the Sequoia National Park by adding the wonderful Kern and Kings River region lying to the east and north, will shortly be introduced and its passage should be urged by our members. This will embrace the Kern River Cañon, South Fork of Kings River Cañon and Tehipite Valley, all of them Yosemite-like valleys, and also countless wonderful features such as Mt. Whitney, the highest mountain in the United States. John Muir during his lifetime heartily indorsed this plan. The grazing and other interests in this proposed area must receive some protection and the bill will doubtless provide for this, but speaking comparatively, the scenic assets of this region far outweigh the commercial uses to which it might be put. It needs roads to make it accessible and usable, and the park control is much more likely to provide the needed money for this purpose.

W. E. C.

REPORTS OF COMMITTEES

REPORT ON 1915 OUTING

The 1915 Outing was a radical departure from the usual summer trips taken by the Club. Instead of moving the main camp and having the entire party travel over a rather comprehensive itinerary, a central camp in the Tuolumne Meadows on the Soda Springs property controlled by the Club was selected instead. From this camp side trips were taken to numberless points of interest, for in variety of attractive nearby features the Tuolumne Meadows surpasses any other campground in the entire Sierra. Another departure from our usual custom was keeping this central camp open for three months instead of the single month which usually covers the duration of our annual trips. Another smaller camp was established at Lake Tenaya for a portion of the time, since this was necessary to add to the convenience of those traveling to and from Yosemite. A camp was also established in the Yosemite Valley for a couple of weeks prior to the first of July, on which date the Soda Springs camp was opened. The Outing was certainly a success judged from the standpoint of those who enjoyed its advantages. There were more Eastern visitors than usual and their enthusiasm was unbounded. All of us were particularly impressed with the wisdom and advantage to the Club of gaining control of the Soda Springs property. Now that we have the Parsons Memorial Lodge erected there, which will probably be kept open each summer by an attendant, our members will be able to derive a distinct advantage from its acquisition. It is probably the most desirable single piece of property which could be selected in the entire Sierra. The opening of the Tioga Road has made this whole region easily accessible.

Financially the Outing was a great failure, and one of the members of the Outing Committee was obliged to advance a large sum to cover the shortage, since the By-laws of the Club will not permit any outing deficit to be made good from the regular Club treasury. This shortage is easily accounted for in the light of the experience. The attempt to keep the camp running for so long a period, with the heavy continuing expenses, whereas the attendance was more or less concentrated during a portion of this time only, and the greater counter attraction of the Exposition, which very materially reduced the attendance of our own members, explains the failure to make good the heavy initial outlay necessary to equip such a camp. It may be that some of this shortage can be recovered by either continuing a camp there in the future or by disposing of the equipment on hand.

Either the Club will have a camp there this next summer or Mr. Desmond, who has the government concession for establishing a chain of camps throughout the park, will have a camp nearby which will be available.

The regular Club Outing in July, 1916, will be as previously announced a trip into the famous Kern River Cañon, affording an easy chance to climb Mt. Whitney and other peaks over 14,000 feet in elevation, and the party will then enter the upper basin of the South Fork of the Kings River, which is another region of wonderful surprises, with its splendid peaks, beautiful lakes, waterfalls, and some of the very best of "pure Sierra wildness." More can be seen on this trip, with greater comfort and less expense, than would be possible under any other circumstances. Those planning to take this trip should enroll now as the list is rapidly filling and the number will be strictly limited. Members of any mountain club and their relatives are welcome. An announcement giving complete details will be issued during the spring.

WM. E. COLBY, *Chairman,*
J. N. LE CONTE,
CLAIR S. TAPPAAN,
Outing Committee

∴

REPORT ON LE CONTE MEMORIAL LODGE

The Le Conte Memorial Lodge, in Yosemite, was officially open this year from May 18th to August 26th. On account of the Panama-Pacific Exposition at San Francisco the majority of visitors were from the Eastern States. The number registering was 1800, and, although there must have been at least twice that number of visitors, there were fewer this year than usual. This, I think, was due partly to the fact that the majority did not know of the Lodge. It seems, therefore, that something should be done to inform the public of its existence. Several times people did not come in until their last day in the Valley, and expressed their regret at not knowing of the Lodge earlier.

A number of improvements were made early in the season under the direction of Professor Le Conte. The roof was repaired and the old and warped floor in front of the fireplace was replaced. The work of piping water to the Lodge was finished.

Perhaps the greatest addition this year was a set of the birds of the Yosemite lent by the "Museum of Vertebrate Zoology" of the University of California. Many visitors expressed their appreciation of this. Mr. Romeyn B. Hough donated a transparency of "Specimen Pages from American Woods." Two or three books were donated to the library.

The Lodge is in need of two or three small tables on which to place the photograph albums, etc., as those in use at present are old and dilapidated. The end walls of the wing storerooms have spread from the roof and need repairing.

Besides serving as a reading room and place of information for the tourists of the Valley, this year the Lodge was used as the headquarters in the Yosemite Valley for the Sierra Club's Camp in the Tuolumne Meadows. Visitors to this camp could secure information at the Lodge concerning it and leave their baggage there.

The sale of maps amounted to..........	$16.50
The sale of BULLETINS amounted to......	2.50
Total..............................	$19.00

BAYARD BUCKHAM, *Custodian,*
MARION RANDALL PARSONS, *Chairman,*
J. N. LE CONTE,
R. M. PRICE,
Committee

⁂

REPORT ON PARSONS MEMORIAL LODGE

During the 1914 outing in the Yosemite National Park the suggestion was made that there should be some sort of enduring memorial to the late Edward Taylor Parsons, whose untimely death had so recently deprived the Club of the companionship and services of one of its most loyal members. Towards the close of the outing the suggestion took definite shape, when Mr. Russ Avery proposed at a camp-fire in Hetch Hetchy that a memorial lodge be built on the property in Tuolumne Meadows controlled by the Club. This location seemed particularly appropriate to those who knew of Mr. Parsons' enthusiasm for that particular spot and his interest in having it brought within the control of the Sierra Club. The proposition was universally approved, and during the next few months steps were taken to raise the necessary funds and to prepare for the construction of the building. Mr. Mark White rendered invaluable assistance in designing the lodge and personally supervising during the early part of its construction, and Mr. Walter L. Huber made plans covering the structural engineering. As soon as the trails were open in the summer of 1915 the materials were sent forward, and early in July the work of grading and construction was begun.

As far as possible the material was obtained from the immediate neighborhood. An abundance of just the right kind of rock for the walls was found close at hand, and logs for the roof and supports had to be hauled but a short distance. The hardware and cement, however, had to be packed in on animals by way of Yosemite, and the galvanized iron for the roof was brought in by motor truck after the opening of the Tioga Road. This roofing will later be covered with some better appearing material. A very substantial form of construction was sought in order to render it proof against the severities of winter. The walls are of rough granite, bound by a core of cement mortar. They are nearly three feet thick at the base, tapering to two feet at the top. The roof is of hewn logs, laid side by side and covered with galvanized iron sheeting. The rafters are bolted to the walls with large iron bolts and held secure with heavy straps of iron designed for the purpose. The front door is of four-inch planks bound with special straps and hinges. The windows are fitted with heavy shutters which can be securely fastened when the lodge is closed for the season, so that equipment can be stored with more than ordinary safety. The interior is a single room, 40 by 26 feet, with two windows on each side and two smaller ones in the front wall, and a handsome fireplace at the end opposite the door. The external appearance harmonizes well with the surroundings. As a prominent architect, who has seen it, expresses it, "The building seems to grow out of the ground naturally and to belong there just as much as the neighboring trees and rocks."

This lodge will be used as a headquarters for members of the Club and probably will be in charge of a custodian during the summer months, making the Soda Springs property controlled by the Club a desirable center to visit and from which to make side excursions.

The cost of construction considerably exceeds the amount of the fund that has so far been raised for the purpose. Many of the members who contributed to this fund originally have expressed their intention of adding a further contribution, and there are doubtless many other members who will be glad to be identified with this pioneer effort towards establishing a permanent headquarters in the High Sierra. Any contributions in excess of the amount needed to make up the deficit will be applied to improvements to the lodge.

A brief summary of the cost of construction and the condition of the fund is appended:

Materials and tools	$ 490.23
Freight and express to Yosemite Valley	165.24
Transportation to Soda Springs	563.55
Labor	1,244.95
Maintenance of workmen	500.00
Miscellaneous expenses	47.51
Total	$3,011.48
Total contribution to fund	1,906.15
Deficit	$1,105.33

The deficit has been temporarily advanced by one of the committee in charge of the building.

Wm. E. Colby, *Chairman,*
J. N. Le Conte,
Wm. F. Badè,
Committee

NOTES AND CORRESPONDENCE

Edited by William E. Colby

◆

The John Muir Trail

During the 1914 outing of the Sierra Club, a suggestion was made by Mr. Meyer Lissner of Los Angeles that a State appropriation should be secured for building trails with which to make the High Sierra more accessible. After Mr. Muir's death, the happy idea occurred of making this appropriation a State recognition of his inestimable service in bringing the wonderful mountains of California to the attention of the world. Accordingly a bill was drafted by the Sierra Club making an appropriation of $10,000 (to be paid in two equal annual installments) with which to construct a trail from Yosemite to Mount Whitney, to be known as the John Muir Trail. In spite of adverse financial conditions, the State Legislature was persuaded by earnest work of the members of the Sierra Club, aided by several civic organizations, to pass the bill. Governor Johnson's final approval made the construction of the trail possible. It is, indeed, a most appropriate memorial to John Muir, who spent many of the best years of his life exploring the region which it will make accessible. This trail will afford a route for traveling with saddle and pack animals north and south along and near the crest of the entire High Sierra. It will begin the work of making accessible one of the grandest mountain regions on the American continent.

State Engineer Wilbur F. McClure was charged with the selection of the final route and the actual construction of the trail. Mr. McClure, after considering suggestions from the Sierra Club, from federal officials and others, made two trips over the lower part of the trail before determining its final location as follows:

> Beginning at a point on the north floor of the Yosemite Valley and running from thence by the most practicable route northeasterly to a junction with the Tioga Road at a point near Tenaya Lake; thence northeasterly and easterly along and upon said Tioga Road to a point near the Soda Springs in the Tuolumne Meadows; thence in a general southeasterly direction up Lyell Cañon to the headwaters of said cañon, to and over Donohue Pass; thence in a general southeasterly direction across Rush Creek and Island Pass to Thousand Island Lake; thence easterly and southeasterly through Agnew Meadows, Pumice Flat, past Devil Post Pile, Reds Meadows, Fish Creek Valley, over Silver Pass, and thence by the most feasible route to the north fork of Mono Creek. Thence in a general southerly direction down the north fork of Mono Creek Valley, and Mono Creek

> Valley to Vermilion Valley; thence by the way of the present traveled trail southeasterly and southerly to Marie Lake and to and over Seldon Pass; thence continuing southerly and southeasterly along the valley of the south fork of the San Joaquin River to the mouth of Evolution Creek; thence continuing in a general southeasterly direction up Evolution Creek Valley, past Evolution Lake, Wanda Lake, over Muir Pass, down Le Conte Cañon to Grouse Meadow and the mouth of Palisade Creek; thence easterly up Palisade Creek Valley and over the pass between the waters of Palisade Creek and the drainage of the south fork of Kings River; thence through the Sequoia National Forest, Upper Basin, and traversing headwaters of the south fork of Kings River to the pass about one and one-half miles southwest of Mount Pinchot; thence southerly and southwesterly along Woods Creek and the south fork of same; thence by the way of Rae Lake, Glenn Pass, Bullfrog Lake and Bubbs Creek to and over an unnamed pass near Junction Peak; thence into the watershed of Tyndall Creek, and over and along the high sandy plateau and to Crabtree Meadows; thence in a general easterly direction to Mount Whitney.

For carrying on construction work, Mr. McClure wisely availed himself of the splendid organization which the Forest Service had available for supervising the work. Thus neither time nor money was spent in exploration by those unfamiliar with the region. In short, every dollar spent bought the greatest possible value. In addition considerable valuable supervision was given by forest supervisors and rangers without cost from the fund available for the John Muir Trail. The plans for cooperation between the State Department of Engineering and the Forest Service were agreed upon at a meeting held in the rooms of the Sierra Club, June 4, 1915, at which were present Mr. W. F. McClure, State engineer; Mr. Coert Du Bois, district forester; Mr. Roy Headley, assistant district forester; Mr. Paul G. Redington, supervisor of the Sierra National Forest; Mr. A. B. Patterson, superintendent of the Sequoia National Forest; Mr. W. E. Colby, secretary of the Sierra Club, and Mr. Walter L. Huber of the Sierra Club's trail committee.

The appropriation did not become available until August 8, leaving a short field season for work. However, in this short season much work was accomplished. Progress within the Sierra National Forest is well shown by Supervisor Redington's report to the State Engineer, much of which is here quoted:

REPORT ON JOHN MUIR TRAIL WORK, FOR SEASON OF 1915, SIERRA NATIONAL FOREST

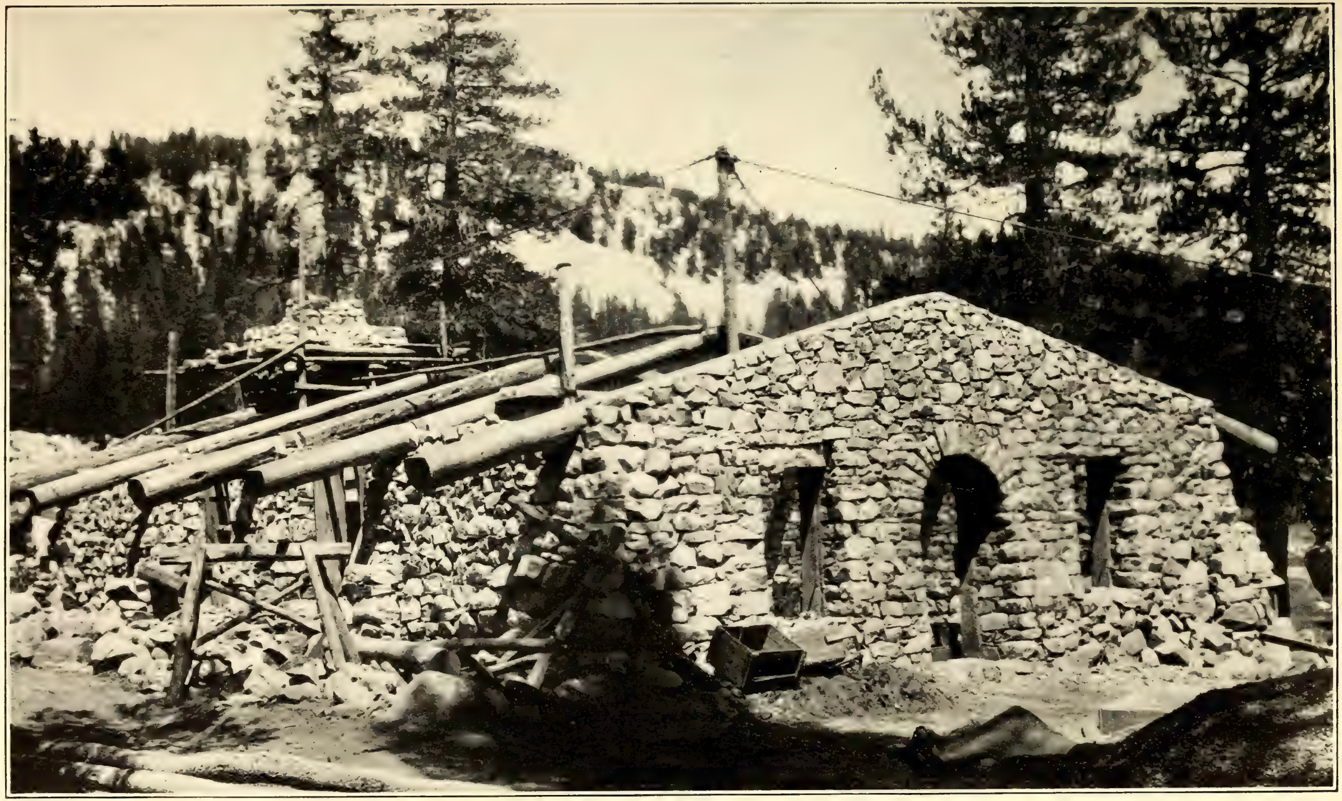
Route. The route which this trail will follow was outlined in a memorandum transmitted with the State Engineer's letter of August 12, 1915, to the District Forester. As a result of the field investigation made this year, it is believed that for the sake of economy, variety and ease of travel, and to obtain greater scenic attractions, the stipulated route should be changed at certain points, which will be discussed in order.

1. From Grouse Meadow, which lies on the Middle Fork of Kings River, near the mouth of Palisade Creek, the official routing of the trail is specified as: "Thence easterly, up Palisade Creek Valley and over the pass between the waters of Palisade Creek and the drainage of the south fork of Kings River." No old trail exists over the pass in question, although a rough trail ascends Palisade Creek from its mouth to the mouth of Cataract Creek.

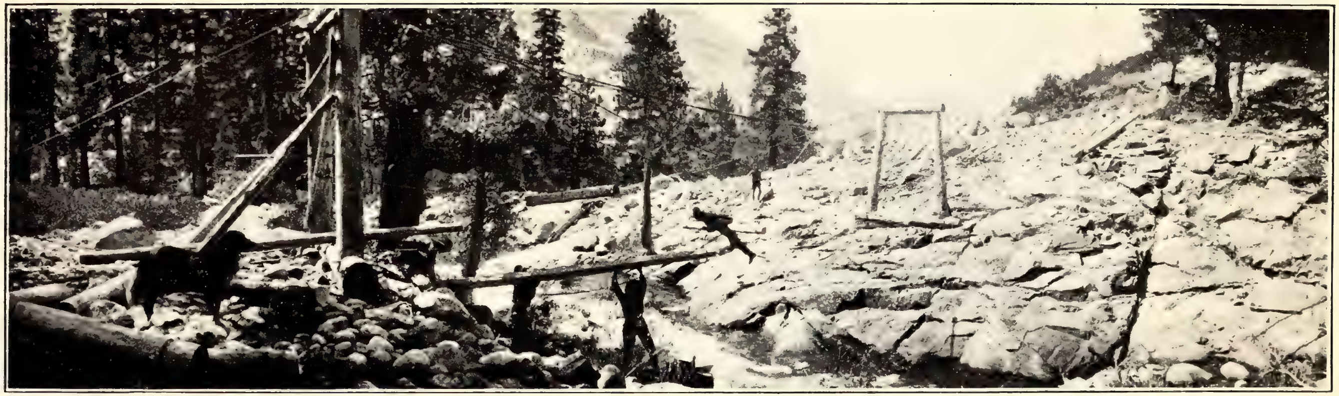
Following a conference between the State engineer, Forest Service officials and representatives of the Sierra Club, when the status of the trail work previously done on the route up the Middle Fork of Kings River from Simpson Meadow, by funds furnished by Fresno County, the Sierra Club and the Forest Service, was explained, no work was planned up Palisade Creek, since it was impracticable to get an outfit there from the Owens River country, and impossible to move the trail crew at work lower down on the Middle Fork, up to the mouth of Palisade Creek. Later, the situation not having apparently been understood, the matter was taken up in detail by correspondence, and the State engineer authorized the continuance of the work on the Middle Fork trail, as preliminary to the work which would finally be undertaken from the mouth of Palisade Creek, east. Eventually the route over the pass at the head of Palisade Creek may be constructed. It has seemed to the Forest officers, however, since a good trail already exists from the South Fork of Kings River up Copper Creek, over Granite Pass, down to Simpson Meadow and thence up the Middle Fork to within 1¼ miles of the mouth of Palisade Creek, that for the present at least the existing trail spoken of should be improved, and the new trail from Cartridge Creek to Palisade Creek should be finished. It will cost less money, so far as we can ascertain with certainty, to put the trail through to Palisade Creek than to put a trail up Palisade Creek and over the pass at its head at an elevation of 12,500 feet. Granite Pass, on the lower trail, can be crossed earlier in the year than would be possible on Palisade Pass, and the lower trail takes the traveler from Palisade Creek down the magnificent cañon of the Middle Fork, across a spectacular gorge near the mouth of Cartridge Creek, and into splendid camping for man and beast at Simpson Meadow. The travel is varied, far more than would be the case if the route over Palisade Pass was followed. With available funds somewhat limited in amount, keeping in mind the comparative maintenance cost, and with the desirability of making a long connected piece of safe trail for the least expenditure of money, it is recommended that the Palisade-South Fork unit be dropped from consideration until the balance of the work has been completed on the entire project.

2. The second material change recommended is toward the northern end of the trail. The present route from Agnew Meadows to Thousand

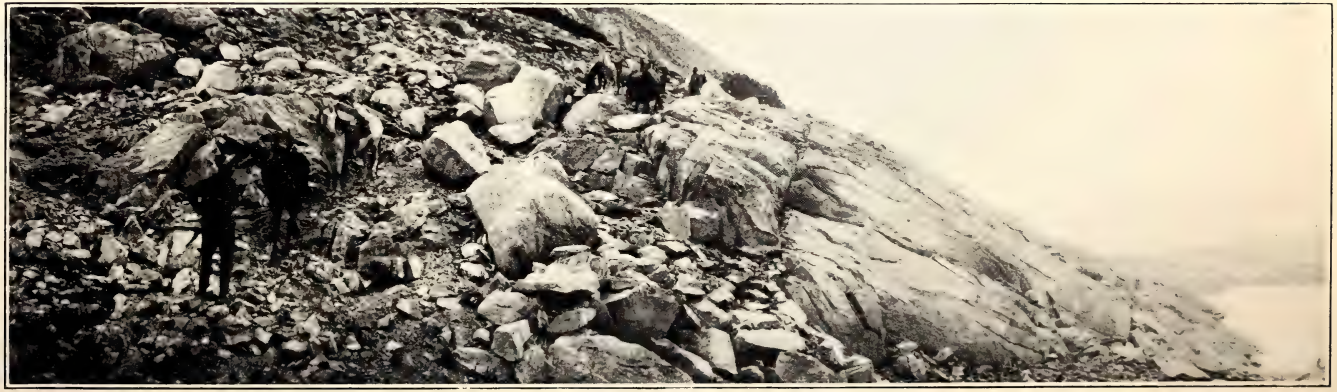
PLATE CXLIX.



PARSONS MEMORIAL LODGE DURING CONSTRUCTION
Photo by Herbert W. Gleason



Building suspension bridge over Piute Creek near Pavilion Dome



Trail Near Seldon Pass, North of Blaney Meadows
CONSTRUCTION WORK ON JOHN MUIR TRAIL
Photos by Paul G. Redington

Island Lake leads through average mountain country. If changed as suggested it will take the traveler by the shores of three of the most picturesque lakes in the entire region (where splendid fishing of golden trout will be possible in 1917), and will give him a close view of the Minarets and Mounts Banner and Ritter. The expense to put this trail through will not exceed that necessary to establish a trail on the other route.

METHODS OF WORK

Supervision. The Middle Fork of Kings River unit of this year's work was supervised by District Ranger Roy Boothe. He went in at the start, visited the project again with the supervisor from August 5 to 9, when the work being done was inspected and a reconnaissance of the proposed route of the trail from Palisade Creek to Muir Pass was made. He went again, in October, to help bring the crew out.

The Muir Pass-French Cañon unit was supervised by District Ranger Frank Price, and during a large part of the work Assistant Ranger Mark Cathey was with the crew. Price was on the job three times, working himself for over a week with the men. The supervisor visited this project in the latter part of July, going over the route from Blaney Meadow to Muir Pass. Later, in September, he inspected the work being done and went over the proposed route of the trail from Blaney Meadow to the head of Fish Creek. He had in previous years gone over the route from Reds Meadows north to Island Pass.

Deputy Supervisor Jordan, in September, went over the proposed route from Reds Meadows to the head of Fish Creek. With the exception, therefore, of the stretch from the mouth of Palisade Creek to the pass at its head, the entire route of the trail within the Sierra Forest, as outlined by the State Engineer, has been gone over, and the situation ahead is thoroughly known to the supervising officers.

Crews. Two crews were employed, one in the Middle Fork of Kings River, the other on the Muir Pass-French Cañon unit. Number of men in crews was eight, including foreman and cook. Wages paid foreman, $3.00 per day and board; laborers, $2.00 per day and board; cook, $60.00 per month and board. The foremen selected were men of experience in handling crews and in trail work. The foreman of the crew in the Middle Fork of Kings River, Sylvester Dehl, was chosen because of his experience also in rock and powder work.

Transportation. The men walked to the job. Materials and supplies were taken into camp on pack animals. Informal bids were obtained from packers prior to start of work and lowest price accepted. Prices, $1.00 per day for pack and saddle horses; $2.00 per day for packer, one packer taking care of six animals. Each animal packed a minimum load of 150 pounds. The schedule of travel was determined by Forest officers and the packers were paid for the schedule time.

The proportion of the packing charge on a job of this kind to its total cost will always be high on account of distance from supply points.

Supplies. Formal bids on all supplies and materials needed in connection with the job were obtained prior to start of work, and supplies were purchased in accordance with the specifications of the accepted bid. The tools, equipment, etc., were, upon completion of the season's work, cached in safe places convenient to the start of work for another year. The food supplies were practically all consumed.

Trail Specifications. Tread, 30 inches minimum width. Plenty of turnouts provided in dangerous places. Grade in no case except under extraordinary conditions exceeding 15 per cent. The exceptions so far as noted were extremely few.

Where grading work was done, ample clearance for packs was made in cuts, and in timber country six feet clearance between trees was obtained. Trail was placed, so far as possible, out of the way of slides, in order to decrease cost of up-keep.

Monuments or trail blazes were placed close together, in no case more than the distance of a chain apart. Generally all prominent trees along the trail were blazed, the standard blaze of the Forest Service, which consists of one long blaze with a notch above it, being used. In the country above timber-line, monuments of large size were placed. Boggy ground was avoided as far as possible. Sufficient overhead brushing was done to allow of clearance of rider on horse of average height. Care was taken where trail traversed slick rock to chink crevices closely.

Powder. The powder used on the Middle Fork of Kings River unit was Hercules 40 per cent; that on the Muir Pass-French Cañon unit was Trojan 40 per cent. Next year it is planned to use 60 per cent powder in the hard-rock work.

Bridges. One bridge, that across the mouth of French Cañon, was built. This bridge is one of the most important features of the entire project.

Recommendations. It is recommended that if we continue to work another year, we be notified at the start of the work of any overhead to be charged against the season's allotment by the State Engineer's office.

It is also recommended that all checks for labor be sent to the addresses of the individuals listed on the payrolls, or if this is not feasible, to the Forest Supervisor at his official address. This year checks were sent in one instance in care of the man who happened to have signed the payroll as acting supervisor. He was on leave, and delivery of the checks was delayed until the rangers felt it wise to avoid the neighborhood of the men who had money coming to them. In a sense the Forest Service, in having field charge of the work, is looked to for payment, and delay therefore is blamed to the field officers. This is not fair and can be avoided next year by following the above recommendation.

We shall keep in mind the State Engineer's suggestion of obtaining outfits from the east side of the mountains. The feasibility of this is doubted, since we could not satisfactorily pick our personnel and would have to hire unknown packers. Furthermore, the summit passes cannot usually be crossed by animals in June, when we would want to start work, and could get to the job readily from this side.

Acknowledgment.—I desire to place on record my appreciation of the interest taken in the work by the men engaged in it, with particular reference to Forest Rangers Roy Boothe and Frank Price and Assistant Ranger Mark Cathey. The task of overseeing the packing of powder, steel, supplies, etc., over difficult mountain trails, and of handling men, the best of whom grow sick and tired of the isolation and monotony of camp fifty to seventy miles from civilization, is no small one and requires lots of patience and tact. I am glad to say that the work was so handled that many of the men who worked on the job this summer, and who are experienced, have asked to be considered for employment next season. Respectfully submitted,

Paul Redington,
Forest Supervisor

Northfork, California, November 22, 1915.

⁂

REPORT ON JOHN MUIR TRAIL WORK, SEQUOIA NATIONAL FOREST

The route of the trail within the Sequoia National Forest was not definitely determined as early as in the Sierra National Forest, but, in the short period remaining after the final determination was made and before the close of the field season, good progress was made. The following expenditures were made for trail work within the Sequoia National Forest from the appropriation for the John Muir Trail:

Wages	$ 650.50
Subsistence supplies	209.47
Other supplies and equipment	281.50
Freight, express and hauling	104.42
Total	$1,245.89

Approximately six miles of the hardest portion of the trail is completed, and a route between Kern and Kings rivers is opened. A portion of the trail at the head of Shepherd's Creek was completed with co-operative funds (not from John Muir Trail appropriation) at an expense of $200.00. This makes the total cost of the trail $1,445.89. Of the $1,245.89 from the John Muir Trail appropriation, $76.60 was expended for camp equipment and tools, and $1,169.29 for actual trail construction. With the additional $200.00 co-operative funds, the average cost per mile for the six miles, exclusive of camp equipment, was $228.21.

Ranger Parkinson, who was directly in charge of the work, reported on October 8:

> "Saddle horses may pass from Center Basin to Tyndall Creek at the present time, but additional work will be done

> in the spring on a short portion leading from Junction Pass to Center Basin, about 50 yards in distance . . . . An excelent grade was obtained on the trail throughout, and the scenery is beyond comprehension; . . . .
>
> "Work on this trail was discontinued on September 27 on account of weather conditions, and of the fact that the workmen had to walk three and one-half miles to work.
>
> "In the spring two men will be placed in Center Basin to complete the portion to Bullfrog, two at East Fork, and five at Crabtree Meadows."

With the remainder of the appropriation a passable trail for saddle and pack animals will be completed from Yosemite to Mount Whitney during the field season of 1916. Further appropriations must be secured to construct that part of the official John Muir Trail from Grouse Meadow easterly up Palisade Creek, over the pass from Palisade Creek to the South Fork of Kings River, down the latter and thence via Rae Lake and Glenn Pass to Bubbs Creek. Additional expenditures for the improvement of many places in the trail are also desirable. It is hoped that, after the splendid work accomplished, and with increasing favorable public sentiment, additional appropriations will be secured.

∴

LASSEN'S SECOND YEAR OF REJUVENATION

BY RULIFF S. HOLWAY

In the SIERRA CLUB BULLETIN of January, 1915, Mr. William C. Hodge gave a brief account of the eruptions of Lassen Peak during its first two or three weeks of activity, with especial reference to the injury to the forest-fire lookout house which had been placed on the highest point of the mountain. The eruptions during the remainder of the year 1914 were on the average about as frequent as those during the first month of activity, but the maximum intensity as measured by the height of the column of steam and ash became approximately twice as great. From July to October, inclusive, in one or more eruptions of each month, the ejected ash column rose to estimated heights of 10,000 to 12,000 feet above the crater. By October, 1914, the new crater was reported as being 900 feet in length and much more rounded in outline, the area of the opening being some five times as great as at the end of June.

Some further idea of the magnitude of the eruptions may be gained from the record of distant observers. A letter from Professor Charles F. Shaw, who was at Amadee, about sixty-five miles eastward from Lassen Peak on October 23, 1914, contains particularly interesting observations. The eruptions began at 5:40 P. M. The crest of the mountain showed plainly over the tops of the nearer hills, and the smoke of the eruption was clearly silhouetted against the western sky, extending directly upward from the peak.

"The smoke rolled up until practically the entire height (12,000 feet) was reached before any change in form occurred, when just below the top of the column there was a tendency to stratification, and a layer extended out toward the south and toward the north. When this appeared, the smoke column began to lean toward the north and, from our point of vision, apparently toward the northeast, and with this inclination of the column distortion took place, the upper part spreading out into streamers. As soon as the inclination of the smoke column became very plain, we could readily distinguish indications of falling material. The lower two-thirds of the column seemed to be dropping some material that was falling in a slightly oblique line, the obliqueness pointing back toward the mountain peak. As the eruption continued and the smoke column blew out more toward the north, the streaked condition indicating falling material became more and more apparent."

So far as known to the writer, no one reached the summit of Lassen during the interval from October, 1914, to March 15, 1915. On that date Mr. George Olsen and Mr. Charley Yori, who remained during the winter, the one at Chester, the other at Drakesbad, made the ascent, using skis for the greater part of the way. Their report indicated some enlargement of the crater since October, but the general shape and appearance were still the same.

Accompanying Mr. Hodge's article was a tabular list of eruptions, closing with No. 53, October 7, 1914, compiled by Forest Supervisor W. J. Rushing. Mr. Rushing has kindly furnished the list as continued by him to Nov. 22, 1915, to which date 132 eruptions are catalogued. Mr. Rushing has done a valuable service in compiling this list, which is undoubtedly the best record available. It is well, however, to remind those not acquainted with the topography and the winter climate of that sparsely settled region that no list of eruptions can be complete, since the surrounding peaks and ridges shut off the view from several of the few near-by stations, particularly from the station nearest, which is seven miles away. During winter clouds frequently prevent observations from some directions and not from others, or shut off entirely any view from near or far. Mr. Olsen at Chester, about twenty miles away in an air line, was fortunate in having no hills to obstruct the view. From November 11, 1914, to May 13, 1915, he reports over forty eruptions with many cloudy periods intervening. During the same period Mr. Rushing reports 16 eruptions not observed by Mr. Olsen, and does not mention nineteen seen by Mr. Olsen. It seems therefore very probable that the average number of eruptions per month during the winter approximated that of the preceding summer.

During the summer of 1915 the most spectacular eruptions and the most interesting, scientifically, occurred on May 20 and 22. These eruptions marked the culmination of nearly three weeks of activity, for Mr. Olsen's record shows constant eruptions all day May 4, 5, 6 and 7. Clouds then prevented further observation until the thirteenth, when a short period of clear sky revealed another eruption; after six more days of storm a temporary break in the clouds showed Lassen in an active state on the nineteenth. The eruption during the night of May 20 resulted in the flood which swept down Hat Creek on the morning of May 21. The first telegraphed reports regarding this eruption told of molten lava flowing down the mountain sides and of streams of mud ejected from the crater itself, but the fact is now well established that the matter actually ejected from the crater consisted largely of rocks and ashes and of very hot steam.

This eruption was markedly different from preceding eruptions in that the column of steam and ash, instead of being projected upward as usual, was directed obliquely down the slope of the mountain. Evidently the throat of the crater had been choked by debris and from under the edge of this lid the explosion forced the steam and highly heated rock and ashes down upon the great mass of snow lying on the northeasterly slope of the mountain; the resultant rapid melting produced the sudden flood which swept down Hat Creek on the morning of May 21. The actual damage to the main farming which lies fully twenty miles to the northward of Lassen Peak was greatly exaggerated in the early reports. In fact in the lower valley it is highly probable that the value of the fertilizing action of the mud more than compensated for the damage of the flood. But at the foot of the mountain and along the headwaters of Hat and Lost creeks no description nor photographs can adequately express the feeling of desolation experienced when one sees the destruction of the natural features of these valleys. The downward blast leveled the forest as if it were no more than a grain field. That the trees were blown down and not broken off by the flood which followed is shown by Plate CLII, where trees leveled by the blast lie above the highest flood line. The needles of the pine trees standing on the borders of the sharply defined path of the blast were killed by the heat of the steam and ashes.

Another feature of this eruption that has received but scant attention is the narrow fan-shaped belt of rock fragments projected for miles across the country in the direction of the Hat Creek blast. At Hat Mountain fragments ranging in size from dust particles to pieces seven inches long covered the snow on the old crater rim (Plate CLI). At Cinder Cone they were found "as large as hen's eggs" and twenty miles away about the size of ordinary marbles. At Eagle Lake, some forty miles distant from Lassen, the lapilli were of the size of coarse sand.

At the time of these eruptions the snow on Lassen Peak was so deep that it was not until May 27 that the actual crater was finally reached. In this first party were Mr. David Durst, from Susanville, and Mr. William G. Reed and the writer, from the University of California. Even with the skilful guidance of Charley Yori, of Drakesbad, in picking a path among the snowdrifts, which covered rocks and gullies alike, the party was six hours on horseback making the six miles to the little plateau at the southeast base of the final peak.

Having in mind the new chasm which yawned in the middle of the ancient crater, on climbing to the rim we were astounded to see an almost level plateau of ugly bare rocks, with hissing steam escaping from the many cracks and crevices, and over all the shimmering air indicating the heat below. Strange as it may seem, those of the party who had visited the crater before found this uplifted mass of old lava more awe-inspiring than the former depths of the crater, leading downward to the internal forces which had produced the great explosions.

Closer inspection revealed the fact that the crater had not been filled by ejected material, but that the entire mass had been shoved bodily upward (Plate CLI). The old crater rim sloped downward some twenty feet and there met the almost vertical wall of the uplifted center with a strip of talus at its foot. Photographs taken later of the southwest and northwest slopes show the dark rocks of the uplift filling the well-known notches in the old crater rim, notches which prior to May, 1915, gave, from some points of view, the impression of two separate peaks.

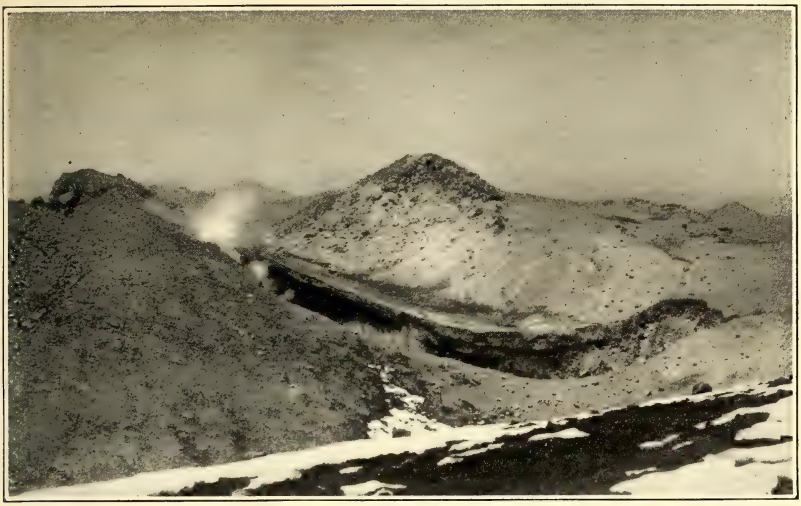
Interest in the eruptions occurring during the remainder of 1915 rests largely in the question whether they indicate that the volcano is becoming quiescent once more. Professor Diller of the United States Geological Survey has expressed the opinion that the great outbursts in May spent the present energy of the volcano and that it will again become dormant. The writer was at first apprehensive that Professor Diller's opinion was correct, but hope for continued activity is not yet lost. Eruptions have occurred at rather frequent intervals throughout the summer and fall. Many of them have thrown columns of steam and ash to a height of several thousand feet. The eruption during the night of October 30, 1915, was sufficient to cause a fall of ashes at Susanville, forty miles away, as attested by Mr. David Durst, principal of the High School at that place. The *Shasta Courier* of November 2 reports an eruption seen from Redding on November 1, "the most spectacular since May 22," and estimates the ash column as 10,000 to 12,000 feet in height.

One further question should be discussed, and that is the one so often asked: "Has any *real lava* been thrown out? Large quantities of real lava which in a former period cooled and became solid down in the throat of the volcano have been ejected, but there is no evidence that molten lava has flowed from the crater during the present period of activity. It is of course self evident that some source of great heat has existed within the volcano for the past two years. Several of the reports that hot rocks or luminous rocks have been seen during eruptions occurring at night are too reliable to be discarded. The following extract from a letter from Miss Inez Hyatt of Sacramento, whose party was camped at Manzanita Lake, scarcely five miles from the top of Lassen Peak, is clear and definite in its testimony.

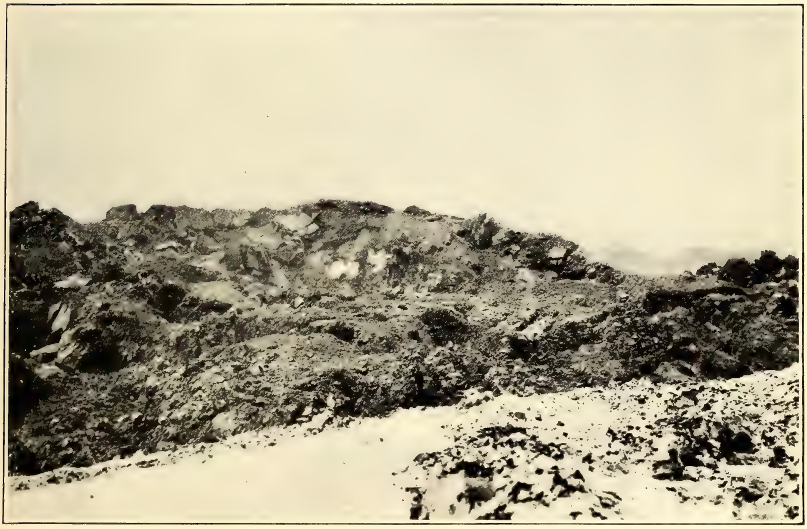
"We really did see a wonderful eruption at ten o'clock at night, June first (1915), when red-hot material shot up, looking very much like flames, and we clearly saw one huge red-hot rock roll down the slope toward Manzanita Creek. There were other rocks, too, which lodged, I suppose, near the top, but this one big rock shot far down beyond the rest. Then a big cloud of black smoke came out and hung like a big balloon over the mountain for fifteen minutes and then disappeared. It was an ideal night, dark, but clear so that all the stars were out."

Subsequently Professor Diller found rocks in that vicinity which seemed to have been recently fused on their surface. It would seem to be a reasonable conclusion, then, that molten lava, whether actually ejected or not, has been nearer the surface than usual during the recent renewal of volcanic activity.

During the present winter it is not probable that many reliable observations of the crater can be made, but the general public as well as the physiographer will await with interest the coming of another summer, which will give the opportunity to learn whether the volcano is really declining in activity or whether the slowly accumulating stress of the internal forces of the earth is to be relieved by an eruption greater than any of the past two years. It may be said, however, that downward blasts from volcanoes are relatively scarce and that the probabilities are against the repetition of the particular combination of circumstances which produced the Hat Creek flood.



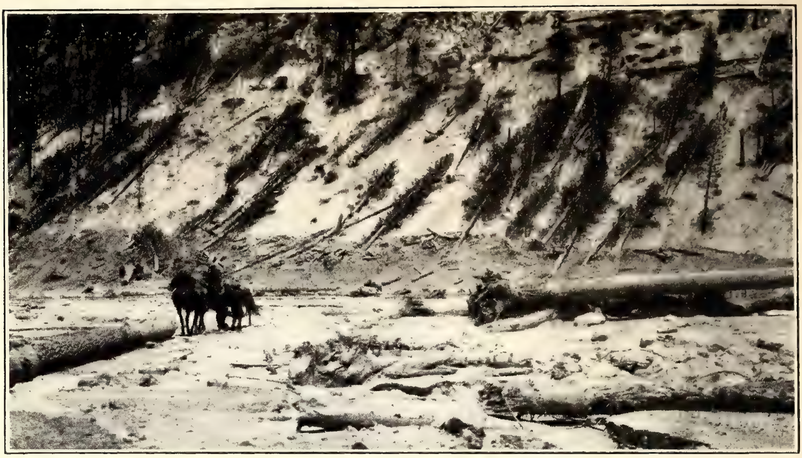
June 28, 1914. View across ancient crater from southern rim, showing new crater with escaping steam

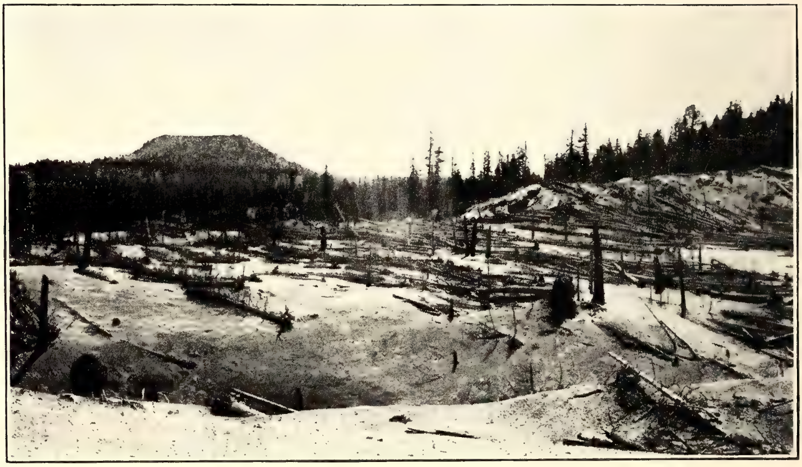


May 27, 1915. From approximately same position, showing chaotic mass of old lava uplifted and filling the former craters

CHANGES IN CRATER OF MOUNT LASSEN

Photos by R. S. Holway





DESTRUCTION OF TIMBER BY MUD-FLOW FROM MOUNT LASSEN

These areas were originally heavily forested. Note trees above line of mud-flow which were felled by steam blast

Photos by R. S. Holway

NATIONAL PARK NOTES

◆

National Parks—The Federal Policy, Past and Future*

To My Fellow-Members of the Sierra Club:

At the request of Mr. William E. Colby, your secretary, I am glad to give you a statement for the Sierra Club Bulletin of my stewardship over the National Parks during the past year, and something of the plans that the Department of the Interior has outlined for the coming year.

The *Yosemite National Park,* in which the Sierra Club is more vitally interested than any of the others, has seen much interesting development during the past year. The most important has been securing and rebuilding the old Tioga Road, reaching some forty-five miles across the Park, from the west to the east side. Over $30,000 has been spent during the past season in putting this road in condition, constructing new bridges, putting in culverts, and general surfacing work. It is now passable to automobiles and is already an important link in the transcontinental travel, besides opening up portions of the Park that have hitherto been practically inaccessible to the ordinary tourist. The development of the road has been accompanied by close co-operation with State Engineer W. F. McClure. The State purchased the east and west ends of the Tioga Road and Mr. McClure promptly went ahead with the necessary work to put these sections into good condition, which made it possible to open up the whole road by the twenty-eighth of July last. In the estimates of appropriations for the coming year the Department of the Interior is asking for $75,000 for the further improvement of the Tioga Road. If Congress makes this appropriation the Department will arrange for regrading a number of points along the road, particularly at the crossing of Yosemite Creek. With the additional work which the State intends to do on their portions, the end of next season should make the Tioga road a perfect mountain highway, with grades that any car of moderate power can negotiate, and with scenery along the route that will be the equal of any in the land.

The Big Oak Flat Road has been purchased by Tuolumne County and the portion within the Park given to the United States by the county authorities. This leaves the Wawona Road as the only toll road in the Park. The State authorities are arranging for the rebuilding of the portion of the Big Oak Flat Road outside the Park, and surveys have been made for the relocation at a point where it enters the Park near the Tuolumne Grove of Big Trees. A survey has been made by State and

---

* The Assistant to the Secretary of the Interior, Mr. Stephen T. Mather, has kindly written this comprehensive statement at our request. [W. E. C.]

National authorities in co-operation, and the heavy grades along the portion of the road just west of Crane Flat will be eliminated. $20.000 is being asked for the improvement of this road for next year. Congress is also being asked for $110,000 to make the road between El Portal and the Yosemite Valley a surfaced boulevard, with a width of twenty-eight feet. If this amount is obtained, tourists will be landed in the Valley with far greater comfort than before. The Department is also asking for $4,000 for the construction of a trail to the Waterwheel Falls of the Tuolumne River, which will make these wonderful falls readily accessible from Lake Tenaya.

Concessions have been given to the Desmond Commissary Company for a new hotel to be erected in the Valley at a cost of approximately $150,000, and a new hotel at Glacier Point to cost approximately $35,000, and the establishment of at least four chalet camps in the upper Park country. One of these is to be located at Harden Lakes, from which point a view of the superb Tuolumne Cañon can readily be obtainable; another at Lake Tenaya, and one each at Lake Merced and in the Little Yosemite Valley. These are to be followed in later seasons by the establishment of additional camps for the accommodation of tourists at low rates. The Desmond Company will establish an auto service between El Portal and the Valley, as well as on the Big Oak Flat and Tioga roads. In fact, it is planned to maintain an auto service on the Tioga Road as far as the Sierra Club camp at the Soda Spring in Tuolumne Meadows. If plans under way are developed, the service will also be maintained from Tuolumne Meadows by way of Mono Lake and Bridgeport to Lake Tahoe. A good saddle and pack horse service will also be maintained between the various camps established by the Desmond Company. Camps Curry, Lost Arrow and Ahwanee in the Yosemite Valley will be maintained as heretofore.

Mr. Mark Daniels, for the past year general superintendent and landscape engineer of National Parks, has given much personal work to the development of plans for the new Yosemite Village, which will center around the new hotel to be built under the shadow of Yosemite Falls and directly across the river from the present Sentinel Hotel. Mr. Daniels is deserving of much credit for the artistic work that he has given in the development of his plan.

I want to thank the officers of the Sierra Club, particularly your president, Professor Joseph N. Le Conte, and your secretary, Mr. William E. Colby, for the assistance they have given me in working out the varied problems of this Park. Their intimate acquaintance and knowledge of the Valley have made their suggestions and recommendations of great value.

In *Sequoia National Park* little was done in the way of important improvements during the past year, but for the next fiscal year the Department is taking an important step in asking for an appropriation of $50,000 to be expended by the Secretary of the Interior in the purchase of private holdings in the Park. This is for the purpose of securing some of the stands of sequoias in the Giant Forest now in private ownership, provided they can be obtained at a reasonable figure. Efforts have been made in the past to appropriate for these holdings, and it is hoped that Congress this year will authorize the Secretary of the Interior to expend this proposed sum. The Department is also asking for an appropriation of $11,000 for the repair and improvement of the Mineral King Road for a distance of eleven miles across the Park. The Tulare County authorities are doing their part in improving the roads which lead to the Park entrances, and the proposed improvement of the Mineral King Road is intended to fit in with the work which they are doing.

In the *Mount Rainier National Park,* now under Supervisor D. L. Reaburn, a civil engineer of high standing, much has been accomplished during the past year. Supervisor Reaburn did particularly excellent work in handling the auto traffic to Paradise Park without a single mishap, and in putting the roads in excellent shape for the heavy travel which they received during the past season. During the fall Mr. Reaburn made a survey of the proposed new road along the Carbon River, which, when built, will open up a new entrance to the Park from the northwest corner. In the estimates for the next fiscal year the Department is asking for $46,000 for the construction of eight miles of this road, which would bring it up to the Carbon River Glacier, and also assist in making accessible the beautiful Spray Park which lies on the northwest flanks of the mountain.

Plans are well under way for a new camp hotel to be constructed in Paradise Park at the opening of the season of 1916, and much of the material is already on the ground. The Department also expects to construct next season a shelter at Camp Muir, so that the mountain climbers will have a refuge at this important point on the way to the summit.

In the *Yellowstone National Park* the most important event during the past year was the opening of the Park on August 1 to automobiles. Nearly 1,000 machines visited the Park, operating under schedule which did not bring them in contact with the horse-drawn stages. During the coming year it is expected that a number of camps for the benefit of automobilists will be established at important points throughout the Park, and an effort will be made to develop the Cody, or eastern, entrance of the Park, and, if feasible, an automobile stage service will be established from this entrance to connect with horse-drawn stages at Yellowstone Lake.

The road construction and repairs in the Yellowstone National Park are carried on by the Engineer Corps of the Army, and the War Department is asking for next year a total appropriation of $292,000. This will be used largely in further improvement of the roads, and particularly in surfacing the portion of the road from the Gardiner entrance with oil and macadam. Under Major Fries of the Army nearly $200,000 was expended during the past year, and the roads in the Yellowstone Park are now in far better shape than ever before. Nearly all the old wooden bridges and culverts have been replaced by concrete, and the roadways straightened and widened.

In the *Crater Lake National Park* the Army engineers are also in charge of road construction, and during the fiscal year ending June 30, 1915, expended a total of $122,000. This work has made accessible to tourists a number of very interesting views of the lake along the rim, and has resulted in good roads being built to all the important entrances in the Park. The War Department is asking for $100,000 for the next fiscal year, to be used largely in surfacing the roads already completed. The hotel which has been in course of erection for some seasons is now practically finished, and if plans which the supervisor of the Park is actively pushing for a new road from Medford to the western entrance of the Park are worked out by the State authorities, Crater Lake will be accessible next season more fully than it ever has before.

The *Rocky Mountain National Park* was opened this summer and had its dedication last August under the chairmanship of Enos Mills, which was very largely attended. The State of Colorado, and the city of Denver in particular, has taken a keen interest in the development of this, the most eastern of our National Parks, and it is expected that from its accessibility the number of tourists visiting it will be much larger than visit any of the other parks.

In the *Glacier National Park* the most important development during the past year was the opening up of the new Many Glaciers Hotel at Lake McDermott. Appropriations are being asked for a total of about $45,000 to improve the roads on the east side of the Park, making these new improvements more easy of access to tourists. Congress is also being asked to appropriate $45,000 for the construction of a road along Lake McDermott, at the foot of Gunsight Pass, with the ultimate plan that a good automobile road will be built across Gunsight Pass to connect up the east and west sides of the Park.

I feel that all of the friends of the National Parks are to be congratulated in securing the services of Mr. R. B. Marshall, former chief geographer and head of the topographic branch of the Geological Survey, who now becomes superintendent of National Parks, succeeding Mr. Mark Daniels, whose personal business made it necessary for him to resign this important post. Mr. Marshall has been closely in touch with National Park work for many years and will give his close personal attention to the development of the parks. One important plan which is now under way and which will help materially in increasing an interest in the parks is the proposed Park-to-Park Highway, intended to link up the leading National Parks by good roads. Already much has been done towards the work of connecting up the Rocky Mountains and the Yellowstone National Parks by way of the Cody entrance to the latter. The people of Wyoming and Colorado are co-operating heartily on this project and every indication points to the completion of this road by next season. It is also planned to have appropriate gateways placed at the different entrances of all the parks, and the Department will welcome any suggestions for any specific entrance. It is our purpose to have these gateways harmonize with the particular park for which they are intended. At the present time there are only two gateways of any dignity; one the Gardiner entrance to Yellowstone National Park, and the other the great gateway of cedar logs which marks the southern entrance of Mount Rainier National Park. STEPHEN T. MATHER

∴

EXTRACTS FROM THE ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR (1915.)

PLACES OF BEAUTY AS AN ASSET

In casting up the assets of the United States as a landed proprietor I have made no mention of one of the most delightful of our national enterprises. To build a railroad, reclaim lands, give new impulse to enterprise, and offer new doors to ambitious capital—these are phases of the ever-widening life and activity of this Nation. The United States does more; it furnishes playgrounds to the people which are, we may modestly state, without any rivals in the world. Just as the cities are seeing the wisdom and the necessity of open spaces for the children, so with a very large view the Nation has been saving from its domain the rarest places of grandeur and beauty for the enjoyment of the world.

And this fact has been discovered by many only this year. Having an incentive in the expositions on the Pacific Coast, and Europe being closed, thousands have for the first time crossed the continent and seen one or more of the national parks. That such mountains and glaciers, lakes and cañons, forests and waterfalls were to be found in this country was a revelation to many, who had heard but had not believed. It would appear from the experience of this year that the real awakening as to the value of these parks has at last been realized, and that those who have hitherto found themselves enticed by the beauty of the Alps and the Rhine, and the soft loveliness of the valleys of France, may find equal if not more stimulating satisfaction in the mountains, rivers, and valleys which this Government has set apart for them and for all others.

It may reconcile those who think that money expended upon such luxuries is wasted—if any such there are—to be told that the sober-minded traffic men of the railroads estimate that this year more than a hundred million dollars usually spent in European travel was divided among the railroads, hotels, and their supporting enterprises in this country.

During the year a new national park of distinction and unusual accessibility has come into existence. It crosses the Rockies in Colorado at a point of supreme magnificence; hence its title, the Rocky Mountain National Park. Through it, from north to south, winds the Continental

Divide—the Snowy Range in name and fact. Two hundred lakes grace this rocky paradise, and bear and bighorn inhabit its fastnesses. It has an area of 350 square miles and lies only 70 miles from Denver. Many hotels lie at the feet of these mountains and three railroads skirt their sides.

This is Colorado's second national park, the other being Mesa Verde, where this department, with the assistance of Dr. Jesse Walter Fewkes, of the Smithsonian Institution, has uncovered during the last summer prehistoric ruins of unprecedented scientific interest.

Oregon has but recently completed a great highway along the Columbia River. This should be connected by road with Mount Hood and a portion of the present forest reserve converted into a park. The limits of Sequoia Park, in California, the home of the great redwoods, should be so extended as to include the Kern River Cañon, a most practicable project today, but tomorrow may be too late because of the lumber interests. The Grand Cañon is not yet part of the park system, although as part of a national forest it comes under the control of the Department of Agriculture.

There is no reason why this Nation should not make its public health and scenic domain as available to all its citizens as Switzerland and Italy make theirs. The aim is to open them thoroughly by road and trail and give access and accommodation to every degree of income. In this belief an effort has been made this year as never before to outfit the parks with new hotels which should make the visitor desire to linger rather than hasten on his journey. One hotel was built on Lake McDermott, in Glacier Park, one is to be built immediately on the shoulder of Mount Rainier, in Paradise Valley, another in the valley of the Yosemite, with an annex high overhead on Glacier Point, while more modest chalets are to be dotted about in the obscurer spots to make accessible the rarer beauties of the inner Yosemite. For with the new Tioga road, which, through the generosity of Mr. Stephen T. Mather and a few others, the Government has acquired, there is to be revealed a new Yosemite, which only John Muir and others of similar bent have seen. This is a Yosemite far different from the quiet, incomparable valley. It is a land of forests, snow and glaciers. From Mount Lyell one looks, as from an island, upon a tumbled sea of snowy peaks. Its lakes, many of which have never been fished, are alive with trout. And through it foams the Tuolumne River, which in a mile drops a mile, a water spectacle destined to world celebrity. Meeting obstructions in its slanting rush, the water now and again rises nearly perpendicularly, forming upright foaming arcs sometimes 50 feet in height. These "water wheels," a dozen or more in number, will be accessible next summer by a trail to be built when the snow melts in June.

While as the years have passed we have been modestly developing the superb scenic possibilities of the Yellowstone, nature has made of it the largest and most populous game preserve in the Western Hemisphere. Its great size, its altitude, its vast wilderness, its plentiful waters, its favorable conformation of rugged mountain and sheltered valley, and the nearly perfect protection afforded by the policy and the scientific care of the Government have made this park, since its inauguration in 1872, the natural and inevitable center of game conservation for this Nation. There is something of significance in this. It is the destiny of the national parks, if wisely controlled, to become the public laboratories of nature study for the Nation. And from them specimens may be distributed to the city and State preserves, as is now being done with the elk of the Yellowstone which are too abundant, and may be later with the antelope.

If Congress will but make the funds available for the construction of roads over which automobiles may travel with safety (for all the parks are now open to motors) and for trails to hunt out the hidden places of beauty and dignity, we may expect that year by year these parks will become a more precious possession of the people, holding them to the further discovery of America and making them still prouder of its resources, esthetic as well as material.

NATIONAL PARKS AND RESERVATIONS

The creation of the Yellowstone National Park in Wyoming, Montana and Idaho by the act of March 1, 1872, marked the beginning of a policy on the part of Congress of setting aside tracts of land as recreation grounds for all the people. Since that time 12 additional national parks have been established in various sections of the country, the latest being the Rocky Mountain National Park, in Colorado, which park was opened to the public last June. The total amount of land embraced in these reservations is 4,665,966.25 acres. To these parks should be added as speedily as possible the Grand Cañon of the Colorado River, with its wonderful scenic features.

Visitors: The interest of the general public in these national parks has been clearly evidenced by the large number of requests for literature regarding them. During the season just closed there has been very marked increases in the number of tourists visiting these national playgrounds. In the Yellowstone National Park in 1914 there were 20,250 visitors, and this year two and one-half times as many—51,895. Yosemite National Park in California had 33,452 visitors during the 1915 season, whereas in 1914 only 15,145 persons visited the park. Again, in Mount Rainier National Park, Wash., there has been an increase in the number of visitors of over 100 per cent—35,166 in 1915 as against 15,038 in 1914.

Economic value of national parks: Leaving out of consideration the cost to visitors of transportation from their homes to the parks, a fair idea of the economic value of tourist travel in four of the larger parks may be obtained by consideration of the financial reports of concessioners, which show gross receipts for past seasons in the following approximate estimates: Yellowstone National Park in 1912, $1,067,161.34; in 1913, $1,186,811.36, and in 1914, $848,688.44. Yosemite National Park in

1912, $311,444.32; in 1913, $359,481.45, and in 1914, $334,914.32. Glacier National Park in 1913, $161,510.87, and in 1914, $155,716.14. Mount Ranier National Park in 1912, $56,735.93; in 1913, $66,942.76, and in 1914, $61,078.08.

Financial reports of concessioners in the parks for the season of 1915 have not yet been received in the department, but in view of the large tourist travel to the far West initiated by the expositions held in California, it is anticipated that marked increases in gross receipts by national-park concessioners will be noted.

Third national-park conference: In prior annual reports attention has been directed to the very satisfactory results obtained from bringing together in conference the various park superintendents for the purpose of discussing the many difficult problems presented in the administration of these reservations. In March of the present year the third conference of superintendents was held at Berkeley, Cal., under the immediate direction of the assistant to the secretary, at which there were in attendance other representatives of this department, representatives of the Departments of Agriculture and War, of the transcontinental railways, of many of the concessioners in the parks, as well as a number of other persons interested in national park matters. Questions were discussed pertaining to hotel accommodations, sanitation, transportation, construction of roads, trails, and bridges, forestry, fire protection, protection of game, and other phases of park administration. A detailed report of the conference will be published by the department.

The consensus of opinion at this conference as well as of those conferences held in 1911 and 1912, was that as many of the problems of park management were substantially the same throughout the several national parks, their supervision should be centralized or grouped together under a single administrative bureau specifically charged with such work. The conference developed many instances where economy and efficiency would be increased by a central administration of all the parks. For instance, the law does not permit the resident engineer of the Yosemite to be utilized at times in any other national park. A temporary surplusage of service or equipment can not be used to meet a corresponding need elsewhere. Without a central administration the national parks can not be handled together, like departments of one business, for the good of all.

Bills to create a national park service have heretofore been introduced in Congress, but none has as yet been enacted into law.

Appropriations and revenues: The total of appropriations made by Congress for protection and improvement of these parks during the year, expendable under this department, was $283,590, and the total revenues received from concessions in all the parks was $81,705.70.

Automobiles in the parks: Automobiles have heretofore been admitted under strict regulations governing travel of the roads to the Mount Rainier, Crater Lake, Glacier, Mesa Verde, General Grant, Platt, and Wind Cave national parks; over the Giant Forest Road, in Sequoia Na-

Seven Gables from Bear Creek

Evolution Lake, near head of Evolution Creek
ALONG THE ROUTE OF JOHN MUIR TRAIL
Photos by Paul G. Redington

Mount Abbott from Mono Pass. This pass, a few miles from John Muir Trail, is on the old route from the San Joaquin basin to Owens Valley

Colby Meadow, a beautiful camp-site on Evolution Creek

ALONG THE ROUTE OF JOHN MUIR TRAIL

Photos by Paul G. Redington

tional Park; in Yosemite National Park, over the Coulterville Road from the Merced Grove of Big Trees into Yosemite Valley, over the Wawona Road leading to the Mariposa Big Tree Grove, and over the Big Oak Flat Road; and in the Yellowstone National Park, over a road in the northwestern section of the park not in general use, for the special accommodation of people of Gallatin County, Mont.

During the past season the generally traveled roads in Yellowstone National Park were opened to motor-driven vehicles, operated for pleasure purposes only, under strict regulations which became effective on August 1, 1915.

The opening during the year of Yellowstone National Park to automobiles used for pleasure purposes has been much appreciated by the traveling public. They were operated under a very carefully worked out schedule which has proved to be highly satisfactory.

This park was visited during the season by 958 cars, carrying 3513 people, which points to a much fuller enjoyment of the wonders in this park by motorists in 1916. The total receipts from automobiles and motor cycles in all the parks were $42,589.73 in 1915, as against $14,243.07 in 1914.

The extremely rapid development of motoring throughout the country, and its enjoyment by people of all degrees of income, has led to an active policy of road extension in all the national parks. An example is the acquisition and improvement of the old Tioga Road through the Yosemite National Park, establishing another highway over the Sierras.

Private holdings: The administration of affairs in all of the national parks, with the exception of the Yellowstone, General Grant, Platt, Wind Cave, and Sullys Hill, is considerably embarrassed by the fact that within the respective boundaries are many patented lands and some toll roads. These private holdings are as follows: Yosemite National Park, 19,827 acres; Sequoia National Park, 3,716.96 acres; Crater Lake National Park, 1337 acres, and 1,121.11 acres of unperfected claims; Mesa Verde National Park, 875 acres and 118 acres unperfected claims; Mount Rainier National Park, 18.2 acres; and Glacier National Park, 8,864.40 acres of patented lands and 7,803.71 acres of unperfected claims.

The majority of these lands, including the Mineral King Road in Sequoia National Park, and the Coulterville and Wawona toll roads in Yosemite National Park, should be acquired by the Government. During the year, through the instrumentality of Mr. Stephen T. Mather, assistant to the Secretary, the title by donation to portions of the "Great Sierra wagon and toll road" (also known as the Tioga Road) and the portions of the "Big Oak Flat and Yosemite Toll roads," within the limits of Yosemite National Park, were transferred to the United States, such donations being accepted by the Secretary of the Interior under the provisions of the sundry civil act of March 3, 1915, authorizing the Secretary of the Interior to accept patented lands or rights of way, whether over patented or other lands, in Yosemite National Park that may be donated for park purposes.

Congress, by the act approved April 9, 1912 (37 Stat., 80), authorized the Secretary of the Interior, for the purpose of eliminating private holdings within the Yosemite National Park and to preserve intact the natural timber along the roads in the scenic portions of the park, both on patented and park lands, in his discretion, to obtain by exchange complete title to any and all of the lands within the boundaries of the park held in private ownership. Among other things it was provided that the value of patented lands within the park offered in the exchange and the value of timber on park lands proposed to be given in the exchange should be ascertained in such manner as the Secretary of the Interior might direct.

The subject was taken up with the Yosemite Lumber Co., which has a large area of patented lands in the park, principally along the Wawona Road, and it was found that an exchange could not be made, for the reason that the value of the lands owned by the company with the timber thereon was far in excess of the timber on the park lands, and Congress, by the act approved April 16, 1914 (38 Stat., 345), amended section 1 of the act of 1912 so as to authorize the secretaries of the Interior and Agriculture, for the purpose of eliminating private holdings in said park and preserving the timber along the roads adjoining the scenic portions thereof on patented lands, to obtain and accept for the United States a complete title to any and all patented lands within the boundaries of the park "by the exchange of timber or timber and lands within the Yosemite National Park and the Sierra and Stanislaus National Forests for such lands and the timber thereon within the park."

Under this legislation the matter was taken up with the Yosemite Lumber Co., and a contract was entered into on January 18, 1915, between it and the department under which the Government is to give timber and timber lands in Yosemite National Park and Sierra National Forest to that corporation in exchange for lands and timber owned by it in the park and forest, the exchange values in each case to be equal. This contract is now being carried into effect under supervision of the representatives of the department in the park.

The act of Congress approved May 13, 1914 (38 Stat., 376), for the purpose of preserving scenic features and consolidating certain forest lands belonging to the United States within the Sierra National Forest and the Yosemite National Park, Cal., authorizes the Secretary of the Interior, on the recommendation of the Secretary of Agriculture—

> "and after obtaining and accepting for the Government of the United States a valid title to the land to be acquired, which title shall be approved by the Secretary of the Interior, to exchange lands belonging to the United States within the Sierra National Forest for privately owned timberlands of approximately equal area lying within the boundaries of said national forest and the Yosemite National Park."

Under this statute an exchange of lands has been consummated which will result in the addition of 160 acres of land to the park.

Jurisdiction: The United States has exclusive jurisdiction over the lands in Yellowstone Park within the State of Wyoming and also over the lands within Glacier National Park, Mont., and Platt National Park, Okla., and Congress has provided a means of enforcement of the laws and regulations pertaining thereto. In the other national parks, however, over which the laws of the States in which they are located obtain, great difficulties in administration have been encountered, owing to the fact that the department has no jurisdiction to punish offenses in violation of the regulations relating thereto, and especially in the matter of preventing depredations on game and the selling of liquor therein.

Conservation of wild animal life: The national parks, free as most of them are from all public lumbering and private grazing enterprises, and protected by law from hunting of any kind, alone have the seclusion and other conditions essential for the protection and propagation of wild animal life. Eventually they will become great public nature schools to which teachers and students of animal life will repair yearly for investigation and study.

The enormous increase of wild animals in the Yellowstone since it became a national park in 1872 points the way. Deer, elk, moose, bison and antelope here abound in greater numbers no doubt than before the days of the white man, and many of them have become almost as fearless of man as animals in captivity. From here many State, county and city parks have been supplied, under proper restrictions, with surplus animals for propagation purposes. When interfering private holdings are extinguished in other national parks and United States laws made to supersede State laws, these, too, will become centers of animal preservation as effective as the Yellowstone.

Increasing park areas: Congress so carefully cut the boundaries of national parks to the express purpose for which each was created that, in some instances, scenic features of the very first order were excluded. In the careful study which the department has since made of each such territory it has become apparent that, in several instances, outlying territory should be added to these reservations. The most distinguished of these instances is Sequoia National Park, the boundaries of which should be extended to include the superb Kings Cañon on the north and on the east the Kern Cañon and the west slope and summit of Mount Whitney, the highest mountain under the American flag; also other instances are the Continental Divide for a few miles south of the new Rocky Mountain National Park, together with several small outlying features of extraordinary beauty.

New national parks: Of the 10 or more scenic neighborhoods claiming national-park status the most distinguished is the Grand Cañon of the Colorado, now classed as a national monument. This is one of the greatest natural show places of the world. It demands and should have immediate recognition and development as a national park.

Other proposed national parks have scenic value and availability of high degree and will be considered as they come prominently before Congress through the desires and activities of the people of their respective States. It is the policy of the department not to actively seek the creation of new national parks but to develop and administer all such reservations accepted by Congress and intrusted to its care.

General superintendent of national parks: Mr. Mark Daniels, general superintendent and landscape engineer of the national parks under this department, made inspections during the year of the Mesa Verde, Platt and Wind Cave national parks, and the Hot Springs Reservation; supervised the enforcement of the regulations in the parks, the laying out of roads and trails, designing of buildings and structures, and the planning of general improvements; provided for the establishment of a unit cost-keeping system in the Yosemite National Park which has resulted in considerable saving, supervised the construction of a concrete bridge in the Mount Rainier National Park, and wooden bridges in the Yosemite National Park, and supplied plans and specifications for several different types of concrete bridges for other parks; replanned the road sprinkling system in Yosemite, established an automobile schedule therein, designed a complete road and trail system for five of the parks, prepared plans for a new village in Yosemite, installed a purchasing branch for the several national parks in San Francisco and purchased through the same materials for most of the western parks, and gave attention to many other details of park administration.

∴

Extracts from Report of the Superintendent of the Crater Lake National Park, 1915

HOTELS

During the season of 1915 Crater Lake Lodge was opened to the public and is located directly on the rim of the lake, nearly 1000 feet above the water, where comfortable quarters are available for guests. The lodge is a cut-stone building containing about 60 rooms, some of which contain hot and cold water and other conveniences. During the season of 1916 it is proposed to build along the entire front of this building, over 100 feet, a 16-foot porch and pergola, from which one can look directly into the lake, nearly 1000 feet below.

TUNNEL TO THE LAKE

From Crater Lake Lodge to the lake is a drop of nearly 1000 feet, and to reach the lake a trail of 2300 feet is provided. Owing to the rugged nature of the rim, this trail is necessarily steep and hard to climb, and many visitors are unable to go over it, so that they are denied the privilege of fishing or boating on the lake. This condition of affairs is a disappointment to many visitors and some sort of provision should be made to overcome it. A lift or other installation within the rim is wholly impracticable, for the reason that every spring enormous slides of snow and rock would sweep any sort of framework into the lake. Under such conditions I would suggest the construction of a tunnel from a convenient point on the road, several hundred feet below the rim, to the surface of the water. With this end in view an appropriation of $1000 is desired with which to make investigations, surveys, etc.

∴

Extracts from Report of the Supervisor of the Mount Rainier National Park, 1915

The Mountaineers, about 90 in number, with a pack train of 50 horses, made the circuit of the mountain in August. The trip around the mountain can be made in about seven days, with an average march of twenty miles over the trail. This trip, with proper advertising, should become a very popular feature of the park. By making camp each night at certain designated points in the natural parks and upland meadows, the tourist can travel on foot by the shortest route, between camps, keeping above timber line, and obtain a magnificent view of the mountain and surrounding country from all angles, affording one of the most interesting scenic trips in all the world.

∴

Extracts from Report of the Superintendent of the Yosemite National Park, 1915

Arrangements have been made for the erection of two new buildings, to be used for fire-protection purposes, known as fire-lookout stations, or triangulation stations. One will be situated on Mount Hoffman and the other on Sentinel Dome.

During the past season there were constructed three new outpost or checking stations, which are used by the park rangers for outpost purposes, these cabins being located at Merced Grove, Crane Flat and Hog Ranch.

The following new outpost stations for rangers' use should be built the coming year: One on the Wawona Road, somewhere in the vicinity of Camp A. E. Wood, and a somewhat larger and more spacious outpost than those constructed this year should be built at Tuolumne Meadows, at which latter place are the Lambert Soda Springs and the Sierra Club's buildings, which accommodate a large crowd each season, and in the near future it will probably be necessary for two park rangers to be stationed at this outpost—one of the first class for ranger duty and one of the second class to check automobiles, as the Tioga Road is now open and a large number of cars will be passing over that road yearly.

Other new buildings especially needed are an administration building, outpost quarters of less elaborate construction than the checking stations, and rescue lodges or chalets, as well as a new hospital.

RANGERS

The ranger department was reorganized under the new park system installed this year, the park rangers being divided into two classes, known as park rangers of the first class (mounted) and park rangers of the second class (unmounted) or automobile checkers. The park-ranger force consists of a chief park ranger, Mr. O. R. Prien, two assistant chief park rangers, and two park rangers, all permanent employees, and seven temporary park rangers, all of the first class, together with four rangers of the second class or automobile checkers. With this ranger department the Government has been able to handle the checking of the automobiles, as well as the protection of the park against forest fires and poachers, with the enforcement of the park rules and regulations. This park-ranger force has very capably taken care of the work performed in previous years by troops of cavalry detailed from the United States Army and stationed in this park.

It is recommended that this park-ranger force be increased by at least two permanent yearly men, one to take charge of the insect-control work, which should be carried on each season and which has been under the direction of Mr. J. J. Sullivan, entomological ranger, detailed for duty in this park from the Bureau of Entomology, Department of Agriculture, and the other to take charge of the newly established information bureau.

FOREST FIRES

This season the forest fires did very little damage and were easily controlled by the park rangers, assisted by the other park employees.

Arrangements have been made and materials purchased for the construction of two fire-lookout stations or triangulation stations for the use of the ranger department for fire protection. Owing to the location of these stations, one being on Mount Hoffman and the other on Sentinel Dome, it will be possible with the high power instruments at hand for the ranger department to instantly locate a fire or fires within the district, and by the triangulation system be able to give the exact location of the fire immediately the fire starts. It is absolutely necessary that these two stations co-operate with the triangulation stations of the Forest Service where possible in the surrounding districts and that we have telephonic communication, so that we may work together in locating forest fires, for the protection of the park as well as the national forests surrounding the park. It would be well when funds are available to establish one or more of these triangulation stations in other districts of the park, as it will not be possible for these two stations to control the whole park area. These stations will lessen the expense of fire protection as well as afford a great protection to the forests of the park.

LAMBERT SODA SPRINGS

The Lambert Soda Springs at the Tuolumne Meadows, on the Tuolumne River, about 25 miles by trail from Yosemite Valley, have been of considerable interest to the visitors to the Yosemite National Park this year, owing to the fact that it has been the first time in the history of these springs that it has been practicable for tourists to make trips to this part and have fine service, such as is given them by the Sierra Club in connection with its camp located near the Soda Springs. There were registered at this camp this season 2236 visitors.* This was partially due to the Tioga Road, which has recently been opened and affords the tourist a convenient way of reaching that point by automobile. The Lambert Soda Springs have this year for the first time received any large extent of recognition, and it would be well for the Government to take the necessary steps to advertise these springs.

The following is an excerpt from the report of Mr. Gerald A. Waring, found on page 237 of Water-Supply Paper 338, of pamphlet entitled "Springs of California," edition of 1915, prepared by the United States Geological Survey:

"The springs rise at the northern edge of Tuolumne Meadows, about 125 yards north of the river's edge, at the upper border of a grassy slope. There is only one spring of appreciable flow, but water bubbles from numerous vents near by. The spring rises in a funnel-shaped pool about 14 inches in diameter in a little log cabin that protects it. In August, 1909, it yielded about one gallon a minute, but its discharge is said to vary somewhat. The water is clear, strongly carbonated, and effervescing, but considerable iron is deposited in the pool. Within the cabin are also two small vents of inappreciable discharge, marked by bubbling. Six other similar pools, a few inches in diameter, lie on a low mound of iron-stained lime carbonate beside the cabin, and another group of eight small pools is located 15 to 25 yards northeast of the cabin. The water in all of the pools is carbonated and small amounts of iron and lime carbonate are deposited at nearly all of them. Efflorescent soda salts also appear in the adjoining grassy land. The following analysis shows the water to be primary and secondary alkaline in character:

Analysis of the Lambert Soda Springs

[Analyst and authority, F. M. Eaton (1909). Constituents are in parts per million.]

Temperature	8° C. (47° F.)
Properties of reaction:	
Primary salinity	11
Secondary salinity	0
Tertiary salinity	0
Primary alkalinity	36
Secondary alkalinity	53
Tertiary alkalinity	7

---

* The above was the registration at the ranger's station, not at the Sierra Club Camp.

Constituents:	By weight	Reacting values
Sodium (Na)	229	9.96
Potassium (K)	5.3	.14
Calcium (Ca)	196	9.81
Magnesium (Mg)	20	1.64
Iron (Fe) Aluminum (Al)	6.2	.22
Sulphate (SO_4)	24	.49
Chloride (Cl)	66	1.87
Carbonate (CO_3)	564	18.80
Silica (SiO_2)	58	1.93
	1,168.5	......
Carbon dioxide (CO_2)	Present	Present

EXTENSION OF THE PARK BOUNDARIES

Under the act approved February 7, 1905, entitled "An act to exclude from the Yosemite National Park, Cal., certain lands therein described and to attach and include the said lands in the Sierra Forest Reserve," 542.88 square miles were excluded, certain parts of which lie on the eastern boundary of the present park, and which contain many scenic views such as the Devils Post Pile, lakes, high mountains, glaciers, cañons, which are in the judgment of many not equaled by any of the views that are within the present park boundaries. Such beautiful lakes as Thousand Island Lakes, Garnet Lake, and the Minaret, with the glaciers leading into it, and the floating glaciers in the lakes are remarkable. These lakes lie at the foot of Mount Ritter and Mount Banner, which are of great beauty, and also Mount Ritter is of higher altitude than any of the mountains within the boundaries of the present park and gives a very commanding and impressive view. This section compares very favorably with the Canadian Rockies, and would make a beautiful trip of scenic value in connection with the people visiting the Tuolumne Meadows and the Lambert Soda Springs by automobiles traveling over the Tioga Road.

I therefore would recommend to the Government that the necessary steps be taken to have put back into the park boundaries all the land excluded by this act lying on the eastern boundary of the park, and also taking in township 1 north, range 25 east, which will include the wonderful set of Saddlebag Lakes and also the Leevining Cañon, which is traversed by the Tioga Road after leaving the park boundaries in its route to Mono Lake, and which is of so much value to the park at the present time that people travel from Yosemite Valley, a distance of 80 miles through the park land and out of its boundary on the east side, for the one purpose of seeing Leevining Creek Cañon, which is in the opinion of many people not equaled by the Grand Cañon for its impressiveness as to depth, ruggedness, and other scenic beauties. Its head is continuously capped with snow, large waterfalls pouring down the cañon.

From this road may be seen the Mono Craters, and one can see the edge of the desert far in the distance. This additional land will mean a great deal to the park from a scenic standpoint.

GEO. V. BELL,
Superintendent

∴

EXTRACTS FROM REPORT OF THE GENERAL SUPERINTENDENT AND LANDSCAPE ENGINEER OF NATIONAL PARKS, 1915

Many of our parks are truly vast in area, encompassing within their boundaries innumerable wonders. To reach these the tourist, upon arriving at the park, must hire saddle animals, pack animals, a guide, cook and other help. The expense of such an outfit is prohibitive to all but the wealthy. Those who have waited and saved their money are denied the fuller enjoyment of our parks, for they can not bear the expense of transporting their supplies over the trails. There is but one solution of the problem of caring for this class of tourists, and that is the establishment of small inns at convenient intervals so that tourists may travel the trails afoot, purchasing their provisions and other necessities as they go. As you are aware, the first steps in an effort to bring about such a condition have been taken in Yosemite National Park. If this work is carried through, a blessing will have been conferred upon those whose lack of money has shut them from the greater part of our national parks. It will also be, in my opinion, the most potent factor in retaining, through the medium of our parks, a material percentage of tourist travel and will necessitate a careful consideration of the problem of a general policy.

To the east of Sequoia National Park is some of the finest mountain scenery in the world. The area in which the scenery lies is of little or no value for purposes other than the pleasure of scenery lovers. It contains the great Kern Cañon, Kings River Cañons, and Mount Whitney, the highest peak in the United States, together with almost innumerable other features. I can not recommend too strongly that the Sequoia National Park be enlarged to take in the areas to the southeast and east, which contain these examples of wonderful mountain scenery.

∴

A BILL TO ESTABLISH A NATIONAL PARK SERVICE*

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

Section 1. That there is hereby established in the Department of the Interior a service to be called the National Park Service which shall be under the charge of a director who shall be appointed by the Secretary, and there shall also be in said service such assistants and other employees as the Secretary of the Interior shall deem necessary.

---

* The American Civic Association is largely responsible for this bill through its national parks committee.

Section 2. That the director shall, under the direction of the Secretary of the Interior, have the supervision, management and control of the several national parks, national monuments, the Hot Springs Reservation in the State of Arkansas, and such other national parks, national monuments and reservations of like character as may hereafter be created or authorized by Congress.

Section 3. That the Secretary of the Interior shall make and publish such rules and regulations as he may deem necessary or proper for the use and management of such parks, monuments and reservations, as are hereby or may hereafter be placed under the jurisdiction of the National Park Service, and any violation of any of the rules and regulations authorized by this Act shall be punished, as provided for in Section 50 of the Act entitled "An Act to codify and amend the penal laws of the United States," approved March 4, nineteen hundred and nine, as amended by Section Six of the Act of June 25, nineteen hundred and ten, (Thirty-sixth United States Statutes at Large, page 857). He may also upon terms and conditions to be fixed by him, sell or dispose of timber in those cases where the cutting of such timber is requisite for properly controlling the attacks of insects or disease, or of otherwise conserving the scenery or the natural or historic objects in any park, monument or other reservation; grant privileges, leases and permits for the use of land, but only for the accommodation of visitors in the various parks, monuments or other reservations herein provided for, but for periods not exceeding twenty years, and that no natural curiosities, wonders or objects of interest shall be leased, rented or granted to any one on such terms as to interfere with free access to them by the public. It is further provided that in the granting of leases and concessions, and in the general management and development of said parks, monuments and reservations, no action unless specifically provided for by future enactments of Congress shall be detrimental to the fundamental object of these aforesaid parks, monuments and reservations, which object is to conserve the scenery and the natural and historic objects therein and to provide for the enjoyment of said scenery and objects by the public in any manner and by any means that will leave them unimpaired for the enjoyment of future generations. The funds derived from such sales, leases, permits and privileges, shall be deposited in the treasury as a general fund to be expended by the director, under the supervision of the Secretary of the Interior, in the administration, maintenance and improvements of the parks, monuments and reservations herein provided for.

Section 4. That the expenses incident to the establishment of such National Park Service shall be met out of funds allotted to the Interior Department for similar purposes and shall be submitted in the book of estimates furnished to the House of Representatives by the Department of the Interior.

Section 5. That all acts or parts of acts inconsistent herewith are hereby repealed.

FORESTRY NOTES

Edited by Walter L. Huber

❧

The Forest Fire Season of 1915 in California

During the forest fire season of 1915 there were reported in District 5 of the United States Forest Service, which includes California and southwestern Nevada, 1190 fires. Of these 80.25 per cent were put out when they had burned over areas of less than 10 acres. The total acreage burned inside the National Forests by these fires was 41,990.05, and outside of the National Forests, 41,837.29. The damage is estimated at $7,343.79. These fires originated from the following causes: Railroads, 16; campers, 312; brush-burning, 62; lumbering, 58; lightning, 290; incendiary, 261; miscellaneous, 59; unknown, 132. With a fire season of the same number of days as that of last year the expenditure for fire fighting was only one-third as large.

⁂

Preventing Fires on Tamalpais

As a result of the great fire of 1913 the Tamalpais Fire Association was organized in the fall of that year. It has, therefore, been in operation for two seasons, and so far its record is an excellent one. During the two years a total of only 640 acres has been burnt over, which, on a yearly basis, is equal to eight-tenths of one per cent of the 40,000 acres under protection. It is also worthy of remark that only 30 acres of brush land were touched by fire, the remaining 610 acres being grass land. The actual damage was slight and consisted for the most part of the scorching of fences and out-houses.

It is frequently said that the Association has been "lucky." Of course a certain amount of chance enters into any system of fire prevention, and the results depend, to a certain extent, on the conditions of wind and weather when small fires break out. However, it seems only fair to assume that the good results on Tamalpais have been largely due to two things. In the first place, a campaign of education has been carried on which has impressed hunters, hikers and others using the mountain park with the importance of being extremely careful with the use of fire; and the education of the public has been supplemented by efficient policing during the dry seasons, with strict enforcement of the regulation which limits the building of camp fires to certain safely prepared spots, and which obliges one first to procure a written permit from the patrolman before lighting fires at these spots. These measures prevented the start of many fires which undoubtedly would have occurred in the absence of restrictions. In the second place, the organized fire-fighting forces of the Association reached and extinguished all the small fires so quickly that they had no chance to spread beyond control. The preventing of fires from starting and the prompt suppression of little fires were the result of systematic work; luck played a very small part.

There have now been constructed twenty-four miles of fire trails, and this winter, which will complete the three-year construction period, it is planned to build six miles additional. These thirty miles, of course, are merely a beginning, for eventually every principal ridge and spur should be traversed by a trail, even if the clearing is no wider than necessary for a foot trail. Quick communication and bases from which to back-fire are the first essentials in any brushy country. It seems probable that all trails must be cleared out at least once every two years, calling for a maintenance expense of about $25 per mile; the original cost of cleaning out strips of from 10 to 20 feet in width has averaged in the neighborhood of $100 per mile, and even at this cost the roots of the brush can not be grubbed out.

Because of the fact that no fires have as yet approached the trails already constructed no test of their usefulness has occurred, although in other regions the efficiency of fire trails has been demonstrated for many years.

Several of the fires which have occurred during the past two seasons have started along the right of way of the Mount Tamalpais and Muir Woods Railway, doubtless from matches or burning tobacco carelessly thrown from the cars. That source will always remain as a considerable menace unless smoking on the trains should be prohibited. Other fires have started chiefly from hunters, from the burning of rubbish, and from boys playing with matches. The State fire laws are weak in many ways, and in several of the towns around the mountain the fire ordinances are defective. Remedial legislation will be attempted.

The main needs of the Association at present are many more fire patrolmen, more fire trails and a paid system for fire fighters. The creation of the Marin Municipal Water District will naturally help the work of fire prevention immensely, for it means the establishment of a 12,000-acre public park in the very heart of the Tamalpais country, implying permanent public management and greatly extended lines of travel. The Tamalpais Fire Association will continue in existence at least until such time as the water district is in a position to take over the work.

The plan of financial co-operation is the most unique part of the Association's work. There is no other similar organization in the United States in which so many and so different interests are welded together for the public good. All the land is privately owned and neither the State nor federal governments assist in any way whatsoever. The property owners subscribe 10 cents per acre each year, according to the size of their holdings; the towns contribute lump sums, more or less in proportion to their assessed valuations; and the public which uses the mountain as a playground aids financially through membership dues. The property owners, without exception, have contributed generously and promptly, and, with one or two exceptions, the same is true of the towns; but the public which enjoys the mountain has responded lamentably. Not only is the membership list ridiculously small; more unfortunate still is the fact that one-third of the members lack sufficient interest in the work to pay their dues.

Incidentally, one-quarter of the Association's income is contributed by Mr. William Kent.

FREDERICK E. OLMSTED,
Consulting Forester

. . .

DEVELOPMENT OF THE RECREATION USE OF THE NATIONAL FORESTS
A CIRCULAR LETTER TO FOREST OFFICERS

Forest Supervisors and District Rangers, District 5:

What is the present status of the recreation use on your Forest? Not that I want a collection of dry figures on the number of travelers that annually go into the mountains. I want you to think about it. A few hundred or a few thousand auto- or wagon-campers wind up your roads in summer, or pack or hike over the trails in your back country. You know in a general way who they are and where they come from; but have you ever seriously studied them from the point of view of developing and promoting this use to the fullest possible extent?

What are the possibilities in this line? With no figures at all, simply from our general knowledge and common sense, we know that they are enormous. Every man or woman or child who gets out of a town or a hot valley and puts in ten days in the mountains in summer is a healthier, happier and better citizen for it. Do you begin to see the possibilities opening before us for contributing to the public welfare? Suppose we define the object we want to accomplish as increasing the recreation use tenfold in five years on every ranger district in every National Forest in California. Let's see how we ought to go about it.

The man who is going on a summer vacation will be looking for hunting or fishing grounds; for chances to live and sleep in the open—to camp; for impressive or beautiful scenery; for opportunities for swimming or boating, or for regions where he can explore unknown country or regions of scientific interest. Our job is to facilitate the accomplishment of these objects by the prospective vacationist. The most obvious road to it is publicity.

What is wanted is to tell as many prospective visitors as possible all they would want to know about a trip into the mountains. A map is probably the most effective and useful means of conveying this information. Suppose each Forest starts systematically to work this winter preparing the very best "Recreation Map" possible. The information is all collected—it is either in the files or in the heads of one or more officers. It remains only to get it into usable shape.

Take the camper map as a base, and put all the recreation data on it as shown in the attached legend. I am informed that it will be mechanically impossible to run our existing camper maps through the press and have this data printed on them. Therefore, each Forest will go ahead and prepare the rough draft for a new edition of recreation maps which we will request Washington to lithograph for us in large numbers. These maps when completed should show to the prospective visitor everything of interest or value, among which are:

1. Outfitting points:
    - Where camp supplies can be obtained.
    - Where gasoline can be obtained.
    - Where saddles and pack stock can be obtained.
    - Where guides, packers or camp-tenders can be obtained.
    - Ranches where butter, milk, eggs, etc., can be obtained.
    - Where meals and lodging can be obtained.
2. Routes of travel:
    - Roads passable for autos.
    - Roads passable for wagons.
    - Trails passable for stock.
    - Trails passable for foot travel.
3. Horse-feed:
    - Meadows where cattle-grazing is permitted.
    - Meadows where cattle-grazing is not permitted.
    - Meadows fenced for use of traveling public.
    - Meadows fenced for use of Forest officers only.
4. Particularly good camp grounds.
5. Interesting areas and scenic points:
    - Forest.
        - Particularly fine timber.
        - Forest Service stations or improvements.
        - Telephones, post-offices, stage stations, etc.
    - Of geological or historical interest.
    - Of botanical interest.
    - Of interest to mountain climbers (safest routes to top indicated).
    - Of interest to hunters.
    - Localities where deer, bear, quail, grouse, etc., are most prevalent.
    - Of interest to fishermen.
        - Stocked streams and lakes, with kinds of fish.
        - Barriers impassable to fish.
    - Of general scenic interest.
        - Waterfalls.
        - Lakes.
        - Cañons.
        - Peaks.
        - Points from which wide views may be obtained.

Other features which should go on such a map will occur to you. I should be glad to have you send them in, in order that all new ideas on this subject may be circulated. We do not want Forest travelers to have to learn to read recreation maps anew for every Forest, so the legend should be standardized. I enclose a suggested standard legend, and shall be glad to receive comments upon it.

Also, what do you think of getting up a recreation leaflet for each Forest to supplement the Forest map—the leaflet to outline certain trips and contain descriptive matter covering the principal recreation features, tables of distances (when not on back of map), and possibly a few photographs? Would the work and expense of this be justified?

Another thing needed is a district poster, with some such title as "The National Forests—California's Recreation Grounds," showing the location of the National Forests in relation to the cities and railroads of the State, and the terminals and routes of all auto and horse stage-lines reaching from railroad points into the National Forests. Please send in to this office the railroad terminal and stage-line data on a proclamation or other small-scale map of your Forest.

A systematic plan must be made to secure the most effective distribution possible of the above information material. The district poster should be sent in quantities to all railroad headquarter offices for posting in every railroad station in the State. It should also be in all garages. Forest recreation maps should be distributed from Forest and district mailing lists; through universities, schools and State government bureaus; through county governments, county and city boards of trade and chambers of commerce; through sporting-goods dealers and clubs, and through magazine and newspaper publishers. Further suggestions along this line are wanted.

* * * * * *

Passively permitting the public to enter and occupy their own property is no public service whatever. The question is, what more can be done by Forest officers to promote recreation use?

There are many opportunities. We can encourage registration, in order to get in touch with the traveler in case of emergency. We can take careful note of campers' horses so as to be of help in case any are lost. Opportunities will arise for tactful hints on care of horses in camp—the making of humane hobbles, for instance, or more comfortable camps. We will put into general use the system of cards of introduction devised by Ranger Wilson of the Tahoe. We can be sure that each party has all the information needed about trails, routes or country. A lost man ought to mean neglect somewhere and a black mark against the Forest where it occurs. We have only started in the business of posting signs—a real public service.

We will consider that the recreation use is one of our major lines of work. Please be prepared to submit with your next improvement estimates the most important projects along this line. We expect to spend some money on it, and will want to consider projects for tourist trails, drift fences to keep stock out of valuable recreation areas, fenced campers' pastures, improved camp grounds, water troughs, hitching racks, reclamation of eroding meadows by ditching, auto turn-outs on roads now unusable for lack of them, improvement of viewpoints, Forest portals and signs, etc.

In your time-estimates, please include such activities as stocking streams with fish, and exploration to develop new recreation areas.

There are many potentialities of securing co-operation in such improvements and activities. The camper trade is a profitable one for a locality, and county supervisors, chambers of commerce or sportsmen's clubs may be willing to work with us. Let us make sure that every organization which is willing has an opportunity to go the limit.

You or your deputy take many trips into interesting country on your Forest each year. Work up a party or two to go with you next season, made up of representative men from the region you wish to interest in the recreation resources of your Forest. This need not interfere with your regular work in the slightest, nor cost the government a cent. At the same time it will not only be the most effective kind of advertising, but will establish personal relations between the Service and recreation users that will be immensely valuable.

Most important of all, every supervisor and district ranger must see to it that he and every man on the job has the correct point of view. The *incorrect* point of view is that campers are nothing more than a fire risk, that they are a nuisance, or that their lack of knowledge of the mountains is ridiculous. The correct point of view is that each one is a citizen using the National Forest and becoming a better citizen by doing so; that while there he is the guest of the Forest Service, and that we have distinct responsibilities concerning him. It might be profitable to think what impression we are making on the camper. We will have made the correct one only when every visitor leaves the Forest convinced of the fact that the pine-tree badge, wherever seen, means courtesy, friendliness and helpfulness—and does *not* mean surveillance or officiousness.

(Signed) COERT DUBOIS,
District Forester

BOOK REVIEWS

Edited by Marion Randall Parsons

◆

"Travels in Alaska"* Whatever in the future may be given to the world of the journals and other unpublished writings of John Muir, nothing is likely to come to us more alight with his personality than are the two volumes published since his death. They bear an interesting relationship to one another, for not only do the *Letters* end just as he was embarking on the first of the journeys recorded in *Travels in Alaska,* but the latter book, the last to leave his hands, is still expressive of the ideals and enthusiasms of the young John Muir so vividly revealed to us in the letters. It is not often given to a man to have lived his life with such singleness of purpose, nor at three-score years and ten to have so completely fulfilled the aims and ideals of his youth.

Travels in Alaska is a record of three journeys of exploration by canoe and afoot among the fiords and mountains of Southeastern Alaska. Although prospectors, traders and a handful of missionaries were scattered among the islands, and were beginning to push up the great river valleys, the greater part of Alaska was in 1879 still unexplored, its fiords uncharted since Vancouver's day. With Fort Wrangell as his base, Mr. Muir made several short steamer trips, which gave him the opportunity to learn something of the glaciers and forests of the vicinity. After his return from an extended trip up the Stickeen River in October, he set out with Mr. Young, a Wrangell missionary, and a crew of Indian canoemen, to visit the fiords to northward, near the country of the warlike Chilcat tribes. Their eventful journey culminated in the discovery of Glacier Bay and its glorious company of glaciers, the largest of which bears Mr. Muir's name. The following year he continued his explorations, particularly in the region of Sum Dum Bay and the Taku Fiord, and in 1890 returned a third time to the Muir Glacier for a more extended exploration of its upper fields and study of its flow.

Today, a generation after the journals were written that are the basis of this book, it is easy to under-rate Mr. Muir's great service to science. He was the first American geologist to grasp the extent and scope of the glacial phenomena of our continent. Others have followed in the paths of research that he pioneered, and have laid before the world the truths he was the first to recognize. "Many detailed proof-facts will be required to compel the assent to this in the minds of most geologists . . . but the glacial millennium will come." In this, as in many another passage of the original journal, omitted in the book, one may read Mr. Muir's quiet confidence in the truth of his theories, his knowledge that the time was not ripe for their general acceptance. It is a wonderful tribute to the thoroughness and soundness of his early investigations that none of his theories had to be modified in the light of later discoveries. His long, patient revision of his notes was devoted entirely to the task of bettering the expression of his early thought, never to any change in the substance of the thought itself.

---

* *Travels in Alaska.* By John Muir. Houghton, Mifflin Company, Boston and New York. 1915. Price, $2.50.

No attempt has been made to rewrite or finish the book, which is presented as Mr. Muir left it, with the exception of some of the chapter divisions and the transposition of certain passages, and even these minor changes were made in accordance with Mr. Muir's expressed intentions. It is not complete, inasmuch as it ends in the middle of the trip of 1890, nor as a whole can it be regarded as a finished production. The inequalities at once apparent in its style were not at all due to failing powers, but only to the fact that time was not granted him to finish it. Mr. Muir's best work was always slow of fruition. To appreciate fully what the world has lost, one has only to compare the earlier published story, *Stickeen,* with the passages in Chapter XV, which give the incidents of that story practically as they were first written in the journals. The vivid, forceful language is there, the keen delight in the wild, stormy, icy day, the sense of oneness with elemental things, and yet it lacks something of the flashes of insight, the philosophy, the poetry, the illuminating touches of the master hand that make the little story a classic.

Nevertheless the book abounds in passages of wonderful beauty. The description of his camp-fire in the storm, of the auroras, of the sunrise in Glacier Bay, of the view from Glenora Peak, and a score of others, will rank among his best work. An interesting aspect of the book is the new light in which it places Mr. Muir in his relation to humanity. His fine, broad understanding of the Indians, their virtues, their failings, the hopelessness of their situation, where the approach of civilization brought mainly the "contamination of bad whites," is manifested most sympathetically throughout. His meeting with the coureur-de-bois, Le Claire, and their intimate companionship for a day and a night before life parted them forever, is another revealing glimpse of the John Muir known to his friends, the big-hearted, open-minded companion, the lover of all things simple, sincere and best in mankind.

In this as in all his other books two qualities stand out pre-eminently —the sincerity of his enthusiasm, the intensity of his religious faith. The sound in the flow of a stream, the note of a thrush, the roar of a rain-laden gale—each of nature's voices was to him the "very voice of God, humanized, terrestrialized, entering one's heart as to a home prepared for it." Perhaps in the years to come his greatest claim to the world's love and reverence will be that in an age of groping, dark materialism he kept alight the flame of simple faith in God, of belief in the spiritual character of nature's influence on man. M. R. P.

"LETTERS TO A FRIEND"* Slight in form in comparison with his later writings, these early letters of John Muir to his friend come to us as a voice from the past, bearing a charm and a fragrance like that of his own dear flowers. Written to one who in motherly affection offered her appreciation and sympathy, they are the outpouring of a heart in whose greatness many were to find companionship. But like all who bear to mankind a revelation of the invisible, Muir was destined to pass many lonely years with nature and with God before people in general were willing to receive his message.

In 1868 Muir yielded to that silent but potent invitation which the great forests and wild-flower gardens of our glorious California ever extend to the lover of nature. Inquiring the way to Yosemite, he set out afoot across the continuous flower fields of the central valley, pausing at night to lie beneath their enfolding bloom, and pressing onward by day toward the heavenly mountains that were to receive him as their own.

With an undying enthusiasm this prophet of the mountains casts forever aside the advice of his well-meaning friends, who would have him enter a career that amounted to something, and, with unspeakable joy, he roams over the untrodden paradise of our great Sierra Nevada.

Patiently he studies the life of bird, and flower, and tree, discovering their inmost secrets and enabling them to converse with us in a common language. He forms close acquaintance with glaciers, standing amid a storm of criticism as their friend, for he showed how they have carved and polished these mountains and made possible the peace and joy of the valleys. Even the rocks seemed to reveal to him their age-long secrets as he saw in them God's own writing.

In the incomparable waterfalls of Yosemite and other valleys of the range Muir found an unending source of pure delight. How reverently he worships their creator as he listens to their changing music! Each tiny drop to him is a heaven-born voice, and all are singing in wondrous melody. By night as well as by day he mingles with their spray, on one occasion following a tiny ledge that led him far behind the great Yosemite Fall. Here, amid its ceaseless thunder, he watches the moonbeams as they filter through the mist. As he lingers long, some spent comets of the fall are blown inward, acquainting him with their hidden power, and speedily inducing him to depart from their sanctuary.

But it is to the glorious, eternal mountains that Muir oftenest turns. With only a crust of bread, living on air and water as only a mountaineer knows how, he seeks their distant summits. In all our wide domain none are more transcendently beautiful than these heavenly mountains. In their flowery valleys, filled with giant trees, innumerable lakes and fairy falls, even the unfeeling traveler must linger with delight, while in the higher regions of the range the wanderer will long find solitudes and mountain peaks unspoiled by man.

---

* *Letters to a Friend.* Written to Mrs. Ezra S. Carr, 1866-1879. By JOHN MUIR. Houghton, Mifflin Co. 1915. $3.00 net.

First of all, in spirit, Muir shares these joys with his friend, then reveals his heart in his letters. True friendship ever reaches far beyond the lives of those who find it. We feel with him the passion pure for God and His creation. Each mountain peak that Muir ascended calls us still to worship as in distant years they called their friend and prophet. With him we see again the holy morning's Alpine glow crown Shasta's distant summit, and by his side, in spirit led, our hearts respond in glad thanksgiving.

While we commend these letters of John Muir to the attention of all who are his true friends, we suggest that acquaintance with our greatest prophet of nature, and that of the land he loved, be further formed through his *Mountains of California, Our National Parks, The Yosemite,* and *Travels in Alaska.* Then will one roam through the valleys and over these mountains of God with seeing eye and understanding heart, while, perchance, the vision of eternal beauty that was his will become one's own.

LE ROY JEFFERS

⁂

"ALASKA DAYS WITH JOHN MUIR"* Every lover of nature and of the mountains will find lasting enjoyment in this volume of Alaskan travel and adventure, and in the account written by John Muir entitled *Travels in Alaska.* Mr. Young first went as a missionary to the Indians of Southeastern Alaska in 1878. There he was visited in the summer of 1879 by Dr. Sheldon Jackson and other leaders of the Presbyterian denomination. With them went John Muir, already famous for his articles on the mountains of California.

Establishing their headquarters at Fort Wrangell, the party chartered a steamer to visit the Indian villages and to explore the cañons of the Stickeen. They found inspiring scenery between the precipitous walls of the river, where beautiful groves of evergreen were carpeted with flowers, and singing waterfalls filled the air with music.

Late one afternoon, John Muir, who was always an indefatigable walker and mountain climber, started with Mr. Young for a distant peak from whose summit they expected to view the sunset. They sauntered along botanizing and enjoying the unfolding landscape as they ascended the mountain. After crossing a glacier and climbing the cliff to a point near the summit, they realized that they must proceed more rapidly if they were to complete the ascent. Pressing forward, Muir fairly slid up the mountain, while Young followed as fast as he was able. In crossing a gulley Young's footing gave way and he found himself sliding downward with both shoulders dislocated. He was unable to check himself until he actually overhung a thousand-foot precipice. Whistling in order to encourage his friend, Muir was finally able to reach his side. Hanging to the cliff with one hand, with the other he swung Young out over its face, and, pulling him in, grasped his collar with his teeth. Then, with both hands free to climb, he ascended for ten or twelve feet to comparative safety. All that night Muir carried and assisted this helpless man down through ten long miles of unknown glacier and cañon, reaching the steamer in the morning. With this introduction it is little wonder that these two became fast friends.

---

* *Alaska Days with John Muir.* By S. HALL YOUNG. New York: Revell. 1915. $1.00 net.

On another excursion they visited Glacier Bay, naming many of the wonderful tumbling rivers of ice which flow into the sea. Muir's description of the voyage among the islands, of the ever present glacier-crowned mountains and of the marvelous colors of the floating ice, reveals an appreciation of beauty which has seldom been equalled.

In 1880 Muir and Young charter a canoe and sail northward, studying the Indian tribes and speaking at their villages. These were the early days of Alaska, and rivers of salmon were found in which there were apparently more fish than water. The quest for gold held no allurements for Muir, and awakened only pity in his heart when he beheld men blind to all but a fortune. Muir's treasure was of flower, and bird, and tree; in them he rejoiced as only a soul that is free from the search for outward things knows how.

A most interesting exploration is made of the fiords of Sum Dum Bay, and far in the heart of one of these is found a wonderful valley with flower-hung walls rising thousands of feet above the water, while a great tumbling glacier hurls its bergs into the peaceful waters. This was appropriately named Yosemite Bay.

Mr. Young's story of the famous adventure with Stickeen is dramatically told, but no one in search of adventure should fail to read Muir's own account of his trip over the vast Taylor Bay Glacier. Unlike most men, he could not remain indoors during a storm, but regardless of darkness or danger, would match his powers against all of nature's forces. In the worst weather, alone, except for Mr. Young's little dog Stickeen, Muir crosses this widely crevassed glacier. Returning at night, they loose their way on its surface, and, after jumping an eight-foot chasm, find themselves on an island, from which they escape only by traversing a frail sliver of ice seventy-five feet in length. Muir often seemed protected where other men would have met their fate.

Mr. Young has given us a vivid, lifelike impression of John Muir, of his vitality and abounding enthusiasm, above all of his abiding consciousness of God as directing all the processes of nature, and delighting in the beauty of the life which He is constantly creating. For him the trees wave and pray, while the lilies ring their bells for joy.

John Muir's place in the literature of our western mountains, trees, and flowers is easily foremost. His gospel of beauty and of joy is destined to become increasingly known as the truth of his message is attested in the experience of all who follow in his footsteps.

Le Roy Jeffers

"Peaks and Precipices"* Mountaineering has its historians, and its men of science, its artists and its poets; Guido Rey is one of its poets, although he writes in prose. Mountaineering, as it is known in Europe at least, has also developed specialists in the several branches of its technique, and Signor Rey is an eminent authority on his specialty. This specialty, the reader of his books will discover, is that phase of mountain climbing known colloquially among Sierrans as "rock-work." In the arduous scaling of precipices, demanding more than human nature can normally supply of fortitude and endeavor, Signor Rey finds a consuming joy. His book is an apology for that form of madness which drives men to attempt these "impossible" climbs, and so frankly, so appealingly and so beautifully does he describe them and their noble effects of inspiration and elevation above the level of normal mortal experience, that at the end he almost convinces the reader of the reasonableness of these perilous enterprises; he is altogether convincing as to the fascination of them.

Descriptions of ten of the author's later climbs, literally "peaks and precipices," in the Dolomites and the Savoyan Alps, constitute his book. But the combination of the specialist in his particular form of sport with the vision of the poet which is the man himself makes his story something altogether different from the usual records of mountain climbs. The pages fairly glow with the writer's vibrant personality, which warms the reader to an unusual intimacy of thought and feeling. And the man himself wins the esteem of mountain lovers. Manly, simple, good-humored, unassuming in his narrative, Signor Rey yet loves his mountains with an ardent passion which is more than phrases. Contact with them gives inspiration and strength; they are "human, wholesome, loyal, unbroken, incapable of treachery." Each precipice and peak is individually a friend, the more so for the terrific struggle of dominating it. But Signor Rey's joy in these remarkable climbs is not from success in the physical struggle, for all his natural but very modest pleasure in his prowess (he had passed his fiftieth year when these later climbs were made). He rejoices much more in the spiritual exaltation of the effort and of the victory, in the "self-revelation which we attain through the savage struggle with the mountains," in the "arduous fatigue which gives health to the body, the wonderful visions that ennoble the intellect, the great emotions that mature the soul."

It is fortunate that a man so sympathetic as Guido Rey with the spiritual lessons of the mountains is so gifted with the power of expression. He lavishes upon the objects of his admiration a truly remarkable beauty of description. The familiar thrilling details of daring climbing are in his narrative described with unusual vividness. But still more admirable are the veteran climber's splendid tributes to the peaks he loves so well. The fervor and the beauty of his thoughts are poetic. One is reminded of the directness of expression and the wealth of imagery of our own John Muir, and feels that, like Muir's many beautiful chapters, these of Rey's, "hymns of praise, proclaiming the ancient virtues and the eternal beauties of this earth," can come only from the depths of a great and understanding soul. Mountain lovers will read this book and rejoice in it. It is a classic of mountaineering literature.

---

* *Peaks and Precipices; Scrambles in the Dolomites and Savoy.* By Guido Rey. Translated from the Italian by J. E. C. Eaton. New York. Dodd, Mead & Company. 1915. 238 pages, 76 illustrations. Price, $3.50 net.

The translator has shown himself in intimate sympathy with the author and his theme. The book is beautifully printed, illustrated with a quantity of excellent plates, and well indexed. A. H. A.

⁂

"THE OLD TESTAMENT IN THE LIGHT OF TODAY"* The theme of Professor Badè's book is stated in the subtitle, "A Study in Moral Development." It may seem to some that the author is undertaking to expound the obvious—one must concede, it would seem, a very considerable "moral development" from the Old Testament records of primitive beliefs and social customs, of primitive worship and ritual, to the standards of thought and belief of the later books. But even if it be conceded that a moral development is involved—nor is this so obvious to many, for many do not read the Old Testament from the point of view to which this conclusion appears—it is an extremely interesting and valuable work which Professor Badè has done in laying that development clear before the reader.

Still more valuable is the service which this study renders to the Old Testament in seeking to relieve it from a burden which it is not competent to bear—the burden of an immense moral authority, to which itself it lays no claim, except perhaps for the particular civilization and time to which it pertains. Doctrines still insist that the Old Testament shall be regarded as divinely authoritative *throughout* as a guide to morals and faith. A faith so founded must be found sooner or later to be incompatible with truth. Professor Badè shows the danger of such teaching to our Christian beliefs. But while his analysis and discussion deprives the Old Testament of the character which has been ascribed to it by dogmas, it enhances the value of these scriptures for what they really are—the record of the development of a nation from the primitive worship of nomadic barbarism into spiritual light. As such the Old Testament becomes the more instructive, and even inspiring.

Particularly valuable and instructive are the author's chapters, "The Moral Character of Jahveh and his Clients in the Early Literature, and "The Origin and Moral Significance of the Decalogue." A. H. A.

---

* *The Old Testament in the Light of Today, a Study in Moral Development.* By WILLIAM FREDERIC BADÈ. Boston and New York, Houghton, Mifflin Company, 1915. xiv—326 pages. Price, $1.75.

"The Conquest of Mount Cook"[*] This beautifully illustrated and attractive volume is an interesting record of a woman's mountaineering experiences in the Southern Alps of New Zealand. It is primarily a book of adventure, though the frequent descriptions of the mountain scenes are sketched with clearness and appreciation. The climbs made by Miss Du Faur are exceedingly difficult, involving dangerous work on glaciers and steep rock faces, and entitle her to a place in the front rank of woman mountaineers. Miss Du Faur was the first woman to reach the summit of Mount Cook, and the first mountaineer to attempt the complete traverse of its three peaks. Many other of her climbs were first ascents. All of her climbing was done under the leadership of the guides Peter and Alexander Graham, to whom she generously accords all the recognition they deserve. For the general reader the only defect of the book is that the unusual features of New Zealand's mountain world—its tropical vegetation growing so close to the snows, its bird life, where parrots are found displaying an interest in recumbent mountaineers "altogether too personal for comfort," are touched upon only with tantalizing brevity. Miss Du Faur's very notable career as a mountain climber was inspired by a real love and appreciation of the mountains, and all mountaineers will wish her success in her future work. M. R. P.

⁂

"Nature and Science on the Pacific Coast"[†] The Pacific Coast Committee of the American Association for the Advancement of Science, in issuing this "guide book for scientific travelers in the West," has performed a valuable service not only for travelers, but for those of our own people in whom the interest in our outdoor world is awakening. We have not space here even to catalogue the interesting material collected by Joseph Grinnell and the fellow members of his committee in *Nature and Science on the Pacific Coast*. Three historical sketches are followed by articles on meteorology, geology, mineralogy, entomology, botany, irrigation, mountaineering, outdoor life, etc., all signed by names that give weight and authority. Among the contributors are many of our own members—Vernon Kellogg, Alexander McAdie, Joseph Le Conte, David Starr Jordan, Charles Atwood Kofoid, Willis Linn Jepson, William Albert Setchell, Harvey Monroe Hall—distinguished authorities, many of them of international repute. Maps of the chief Pacific Coast cities, geological and other charts, add to the value and attractiveness of this very interesting book.

M. R. P.

---

[*] *The Conquest of Mt. Cook*. By Freda Du Faur. An account of four seasons' mountaineering on the southern Alps of New Zealand. New York, Chas. Scribner Sons. London, George Allen & Unwin, Ltd. 1915. Pages, 250. Price, $3.50.

[†] *Nature and Science on the Pacific Coast*. A guide book for scientific travelers in the West. Illustrated with nineteen text figures, twenty-nine half-tone plates and fourteen maps. Paul Elder & Company, San Francisco. 1915. Pages, 302. Price, $1.50.

"IN THE OREGON COUNTRY"* Catch an Easterner young enough and he may become more loyal to the West than many a born Westerner. Perhaps because he has experienced the "conservative pessimism" of the East he is the more likely to become enamoured of the "impulsive optimism" of the Pacific Coast. *In the Oregon Country* is a striking but not overdrawn picture of the West that Mr. Putnam has grown to love since he first, nearly eight years ago, struck out on the trail with the Sierra Club. Though the book deals chiefly with Oregon, he ranges over its borders into Washington and California too. From the mountaineer's standpoint the latter part of the book will be found most interesting, dealing as it does with the wilderness of the West rather than its agricultural or economic development. The last chapter is devoted to his summer in the Sierra, including a knapsack journey through Yosemite Park and an outing in the Kern with the Sierra Club. The book is well written, truthful and entertaining, and shows a real love and enthusiasm for the present beauty as well as the hopeful future of this country of his adoption. M. R. P.

∴

"MOUNTAIN EXPLORATION IN ALASKA"† Mr. Alfred H. Brooks, chief of the division of Alaskan mineral resources of the United States Geological Survey, is the author of Number 3 of *Alpina Americana,* published by the American Alpine Club. After an adequate description of the location and character of the principal mountain systems and ranges of Alaska, particularly of their glaciers and glaciation, Mr. Brooks gives a very interesting but brief account of exploration and mountaineering there, from the first glimpse of St. Elias recorded by Stellar, naturalist of the Bering Expedition in 1741, to the recent much-discussed ascents of Mount McKinley. Much of the exploring fell to the lot of our indefatigable Geological Survey, especially in connection with the International Boundary Survey in 1903.

The paper is uniform in size with the other two numbers of *Alpina Americana,* "The High Sierra of California," by Joseph N. Le Conte, published in 1907, and "The Canadian Rocky Mountains," by Charles E. Fay, issued in 1911. Like the others of the series, it is magnificently illustrated. It is unfortunate, from the point of view of those who esteem these excellent publications on the mountains of our continent, that they are issued at such long intervals. A. H. A.

---

* *In the Oregon Country.* Out-doors in Oregon, Washington and California, together with some legendary lore and glimpses of the modern West in the making. By GEORGE PALMER PUTNAM. With 52 illustrations. G. P. Putnam's Sons, New York and London. 1915. Pages, 169. Price, $1.75.

† *Mountain Exploration in Alaska.* By ALFRED H. BROOKS. *Alpina Americana,* No. 3. Published by the American Alpine Club, Philadelphia. Baltimore, Williams & Wilkins Company. 1915. Price, 85 cents.

"THE ROCKY MOUNTAIN WONDERLAND"[*]

Enos A. Mills is one of those refreshing and satisfying authors who writes, not because he wishes to make himself heard, but because he has something really worth while to say. His books are all records of the observation and experience of many years. His studies of the forests and wild animals are particularly interesting. In his descriptions of the wild animals he is at his best, for he is not only their observer, but their friend, who has grown into intimate knowledge of their lives and habits through long association with them. His style is crisp and vigorous, natural and direct. His latest book, *The Rocky Mountain Wonderland,* is full of interesting matter. Many of its chapters should prove no less absorbing to children than to their elders. For Sierra Club members it has special value as it describes many features of our newest national park.

M. R. P.

⁂

MOUNT MCKINLEY AND MOUNTAIN CLIMBER'S PROOFS[†]

The Mount McKinley controversy is reopened by Edwin Swift Balch in a very interesting monograph entitled "Mount McKinley and Mountain Climber's Proofs." Mr. Balch is himself a noted mountaineer and traveler, and his word carries with it the authority of experience. He adopts the ingenious device of printing in parallel columns quotations from the published descriptions of the three claimants to the honor of the first ascent of McKinley—Dr. Frederick A. Cook, 1906; Thomas Lloyd and party, 1910, and Dr. Hudson Stuck, 1913. A fourth column includes the description by Belmore Browne of the attempt made by him and Herschel C. Parker on Mount McKinley in 1912, when they reached a point within a few hundred feet of the summit, but were driven back by storms. The case for Dr. Cook is strengthened by the fact that his account of the climb was published long before that of any of the others. In Mr. Balch's opinion the "facts seem to be that the four climbers who say they have been on or nearly on the top of Mount McKinley told the truth, as well as they knew how, about their experiences. That Cook, Lloyd, Brown and Stuck, reporting as they do, though in different words, much the same facts and much the same experiences, corroborate one another." The discussion of Dr. Cook's disputed photograph of the summit would have been aided by a reproduction of that photograph and the alleged parallel by Dr. Browne. The last word has not been spoken on the subject, but Mr. Balch's able presentation of one of the most confused and disputed cases of mountaineering history deserves the careful consideration of all who are interested in the first ascent of America's greatest mountain.

M. R. P.

---

[*] *The Rocky Mountain Wonderland.* By ENOS A. MILLS. Houghton, Mifflin & Co. Boston and New York. 1915. With illustrations from photographs. Pages, 353. Price, $1.75 net.

[†] Mount McKinley and Mountain Climber's Proofs. By EDWIN SWIFT BALCH, Philadelphia, Campion and Company, 1914. Pages 142.

"Guide Book of the Western United States"* The traveler in the Western part of the United States may behold from the car window monuments far more ancient and often more picturesque than the ruins of antiquity that are to be found in Europe. The mesas of Arizona and the weird rock formations of Wyoming and Utah have histories as full of stirring episodes as many a Rhenish castle or Grecian citadel. It takes no special knowledge to understand the great geological drama that has been enacted throughout our broad land; all that is needed is a sort of geological Baedeker to point the way. Realizing the possibilities of such a guide, the United States Department of the Interior, through the Geological Survey, has begun the publication of just such a series. Four volumes have been issued during the past year, and it is to be hoped that more are to follow, so that in the future they may be as conspicuous on the railroad trains of every line as the little red books are in Europe.

The plan of the series, as stated by the Director of the Geological Survey, George Otis Smith, is "to present authoritative information that may enable the reader to realize adequately the scenic and material resources of the region he is traversing, to comprehend correctly the basis of its development, and, above all, to appreciate keenly the real value of the country he looks upon, not as so many square miles of territory represented on the map in a railroad folder by meaningless spaces, but rather as land—real estate, if you please—varying widely in present appearance because differing largely in its history, and characterized by even greater variation in values because possessing diversified natural resources."

Of the four volumes issued three trace the transcontinental lines of the Northern Pacific, the Santa Fé, and the Overland routes; the fourth deals with the Shasta Route and Coast Line. The text is indexed by the railroad stations and is supplemented by well-chosen illustrations and by admirable maps. These maps are one of the chief advantages of the books. They show the principal features of the landscape for several miles on either side of the route by means of contour lines at intervals of 200 feet. Those who have used similar contour maps on outings in the high mountains may take particular pleasure in checking off the thin brown lines, enjoying at the same time the comfortable upholstery of the Pullman.

We have only one regret to express in connection with these books, and that is that they are not easy to find when wanted in a hurry. At present the books are obtainable only by writing to the Superintendent of

---

* *Guide Book of the Western United States.* Department of the Interior. United States Geological Survey, George Otis Smith, Director. Price, $1.00 per copy. $4.00 per set.

Part A. The Northern Pacific Route, with a side trip to Yellowstone Park. By Marius Campbell and others. Bulletin 611, 1915.

Part B. The Overland Route, with a side trip to Yellowstone Park. By Willis T. Lee, Ralph W. Stone, Hoyt S. Gale and others Bulletin 612, 1915.

Part C. The Santa Fé Route, with a side trip to the Grand Cañon of the Colorado. By N. H. Darton and others. Bulletin 613, 1915.

Part D. The Shasta Route and Coast Line. By J. S. Diller and others. Bulletin 614, 1915.

Documents, Government Printing Office, Washington, D. C. The price is one dollar a copy or four dollars for the set. F. P. F.

. . .

"Trail and Timberline"* The Colorado Mountain Club is to be congratulated on this very original and beautiful first number of its "Review in Picture." Except for a short paragraph describing each picture printed on the opposite page, and for an organization page giving the officers and committees of the club, the entire review is given over to splendid photographic reproductions. The good taste shown in their selection and their placing on the wide-margined pages cannot be too highly praised. Among so many fine pictures it is difficult to distinguish, but the very unusual "Inside a Glacial Crevasse" by Geo. C. Barnard, and "The Tree Frontier" by Albert H. Haanstad may be mentioned as making the strongest personal appeal. M. R. P.

. . .

"Pacific Outdoors"† Our members will be interested in the new monthly magazine, *Pacific Outdoors,* whose initial number was issued December, 1915. It is an attractively illustrated number with articles of interest alike to sportsmen and mountaineers. The local walks of the Sierra Club are to be announced monthly in its columns. The following quotation from the leading editorial defines the purpose and scope of the magazine:

"We are going to stand for conservation of wild life; for the proper enforcement of those laws for its better protection; for new laws that will still better protect such life; for the pleasures to be had in outdoor life in fishing, hunting, camping, hiking, fly-casting, trap-shooting, yachting, motoring, both on land and sea, and for all clean sports that tend to bring out the best in us, to the end that we may improve our physical and mental sides and be better for it." M. R. P.

. . .

The January, 1916, issue of *American Forestry* contains several articles of unusual interest to mountaineers. In particular we would mention *National Parks as an Asset,* by the Honorable Franklin K. Lane; *The Sequoia National Park,* a splendidly illustrated story by Mark Daniels, and *The Forests of Alaska,* by Henry S. Graves.

---

* *Trail and Timberline.* An annual mountaineering review in picture. The Colorado Mountain Club, 1915. George H. Harvey, Jr., secretary, 3120 W. 23rd Ave., Denver, Colorado.

† *Pacific Outdoors.* Geo. A. Wentworth, editor. Pacific Outdoors Publishing Company, 35 Montgomery Street, San Francisco. Issued monthly. Yearly subscription, $1.50; single copy, 15 cents.

"THE MOUNTAINEER" VOLUME VIII[*] The Mountaineers' annual publication comes to hand as the SIERRA CLUB BULLETIN goes to press. It contains a most interesting article by François E. Matthes, of the United States Geological Survey, on the methods used in mapping the Mount Rainier region, and in determining the height of the mountain by carefully checked vertical angles from known points. Other articles of great merit are by G. F. Allen, supervisor of the Rainier National Forest, on forest types, and by Professor Edwin J. Saunders, of the University of Washington, on the geological history of Rainier. The activities of other mountaineering clubs are reviewed in a series of communications from the different clubs. The narrative of the 1915 outing of the Mountaineers stimulates a most cordial feeling of understanding with these our brothers and sisters of Puget Sound.

A. H. A.

∴

"THE CANADIAN ALPINE JOURNAL"[†] The new volume of the *Canadian Alpine Journal* is very largely devoted to the Northern Rockies in the vicinity of Mount Robson, newly opened to travel by the completion of the Grand Trunk Pacific Railway. Articles on the little known Purcell Range of the Southern Selkirks also appear. The records of the two camps established by the Canadian Alpine Club in 1913 and the Upper Yoho camp of 1914 are likewise included. It is an unusually interesting and well illustrated number. M. R. P.

∴

Two splendidly illustrated reprints from the *Geographical Journal* of March, 1914, and February, 1914, have been presented by the authors to the library of the Sierra Club. "Physical Characteristics of the Siachen Basin and Glacier System," by William Hunter Workman, and "The Exploration of the Siachen or Rose Glacier, Eastern Karakoran," by Fanny Bullock Workman. Dr. Workman has also presented his English version of an article from *Zeitschrift für Gletscher Kunde*. Band VIII, entitled "Features of Karakoran Glaciers Connected with Pressure, Especially of Affluents." The thanks of our members are due Dr. and Mrs. Workman for their courtesy in sending us these extremely interesting and valuable papers. M. R. P.

∴

SIERRA CLUB STATIONERY

The official die of the Sierra Club is now at the store of Paul Elder & Co., 239 Grant Avenue, San Francisco, who are prepared to execute orders for Club stationery.

---

[*] *The Mountaineer*, volume VIII. Published by the Mountaineers, Seattle, December, 1915. 118 pages. Price, 50 cents.

[†] *The Canadian Alpine Journal*. Published by the Alpine Club of Canada, headquarters, Banff, Alberta. 1914 and 1915, Vol. VI, pages 263. Price, $1.50.

Northwestern Pacific Railroad

The Land of Opportunity

"Good fortune awaits every man who is willing to work for it"

In Humboldt, Mendocino, Sonoma, Lake and Marin Counties are thousands of acres awaiting settlement that will produce vast quantities of

Apples
Pears
Other
Deciduous
Fruits
Grapes
Grain
Hay
Cattle
Hogs
Chickens
Turkeys
Dairy
Products
Prunes
Berries
Garden
Truck

Now is the time to investigate and purchase. Literature on request to

J. J. GEARY, Gen'l Pass. Agent
808 Phelan Building, San Francisco, Cal.

A Service You May Depend Upon

7 TRAINS EACH WAY BETWEEN
SAN FRANCISCO, OAKLAND, SACRAMENTO

Regular Service
Modern Electric Block Signals
Comfortable Coaches
Rock-Ballasted Road-bed

Through Observation Car Service between Chico and Bay Cities in connection with Nor. Elec. Ry.

Write for Descriptive Folder

OAKLAND, ANTIOCH & EASTERN RY.

San Francisco Depot : Key Route Ferry

The Ellery Arms Company

583-85 MARKET ST
SAN FRANCISCO, CAL

THE SIGN OF QUALITY

The "Been There"

Outing Goods Store

Devoted exclusively to the needs of sportsmen and sportswomen—with 35 years of progressive camp experience to assist

OUR SUITS ARE IN EXCLUSIVE STYLES

Fashioned with "character" from standard government grade khaki to the famous auto woolen—appropriate, practical and fairly priced

ELLERY HIKING BOOTS GIVE GENUINE COMFORT

They also are of our own creation, possessing leather, shape and construction which have made them "standard" to the royalty of the trail

LEARN WHAT ELLERY QUALITY, SERVICE AND PRICE MEANS

Impossible to enumerate the hundreds of seasonable articles that cannot be bought elsewhere, so we invite your inspection, with the reminder that attention to detail has made our establishment

The Largest Outing Supply House in America

☞ Complete outing goods catalogue sent free on request ☜

Ellery-Made
MEANS QUALITY

Some of the High Points of the Pacific Coast

The Pacific Coast is Nature's Exposition, two thousand five hundred miles long, of wonderful climate, wonderful scenes, wonderful products

Tahoe—"The Mile High Lake" in the heart of the Sierras.

Yosemite—Its domes and cliffs, its flowered meadows, its glorious waterfalls. To miss Yosemite is to lose a delightful experience.

Mariposa Big Trees—The oldest living things. Ideal trees, impressive in size and symmetry.

Kings and Kern Rivers Canyons, with Sequoia and Grant National Parks, at summit of Sierras—a vast and rugged region to tempt the sportsman and mountaineer.

Santa Cruz Mountains and Big Trees, and California State Redwood Park—4000 acres of virgin forest.

Mount Shasta, Mount Whitney, Mount Wilson, Mount Lassen (the only active volcano in the United States), the Siskiyous, McLoughlin Peak, Mount Jefferson, Mount Hood, Mount St. Helens, Mount Adams and Mount Rainier.

Crater Lake National Park and the Klamath Lakes country—Oregon's marvelous tourist ground and sportsman's paradise.

ALL ARE REACHED VIA LINES OF

Southern Pacific

FIRST IN SAFETY

Sunset, Ogden and Shasta Routes

PRINTED BY TAYLOR & TAYLOR, SAN FRANCISCO

SIERRA CLUB BULLETIN

VOLUME
TEN

SIERRA
CLUB
MDCCCXCII

NUMBER
TWO

SAN FRANCISCO
JANUARY
1917

Smithsonian Institution
APR 13 1917
National Museum

PUBLICATIONS OF THE SIERRA CLUB
NUMBER FIFTY-TWO

SIERRA CLUB BULLETIN
FOUNDED 1892

Edited for the Club by
WILLIAM FREDERIC BADÈ

JANUARY, 1917

VOL. X — No. 2

CONTENTS

Plate CLV. Head of Deer Creek Cañon — *Frontispiece*

THE SIERRA CLUB — *Joseph N. Le Conte* 135
Plates CLVI, CLVII, CLVIII.

TO THE MEMORY OF JOHN MUIR — *C. Hart Merriam* 146

TEN VOLUMES OF PUBLICATIONS (1892 TO 1917) — *Elliott McAllister* 152

THE WAR-ZONE FOREST OF THE KERN — *Walter Mulford* 155
Plates CLIX, CLX.

THE YOSEMITE CONY—A CHAPTER IN THE NATURAL HISTORY OF THE YOSEMITE NATIONAL PARK — *Joseph Grinnell* and *Tracy I. Storer* 159
Plate CLXI.

THE SACRED MOUNTAIN OF CHINA — *Eunice Tietjens* 165
Plate CLXII.

THE KERN RIVER OUTING OF 1916 — *Jessie McGilvray Treat* 170
Plates CLXIII, CLXIV, CLXV, CLXVI, CLXVII, CLXVIII, CLXIX, CLXXII, CLXXIII, CLXXIV, CLXXV, CLXXVI, CLXXVII.

VIA DEER CREEK — *C. Nelson Hackett* 179
Plates CLXX, CLXXI.

STUDIES IN THE SIERRA
III. ANCIENT GLACIERS AND THEIR PATHWAYS — *John Muir* 184

INDIAN VILLAGE AND CAMP SITES IN YOSEMITE VALLEY — *C. Hart Merriam* 202

ORGANIZATION OF THE SIERRA CLUB 210

EDITORIALS 211
Plates CLXXVIII, CLXXIX.

REPORTS OF COMMITTEES 215

NOTES AND CORRESPONDENCE 221
Plates CLXXX, CLXXXI, CLXXXII, CLXXXIII, CLXXXIV, CLXXXV.

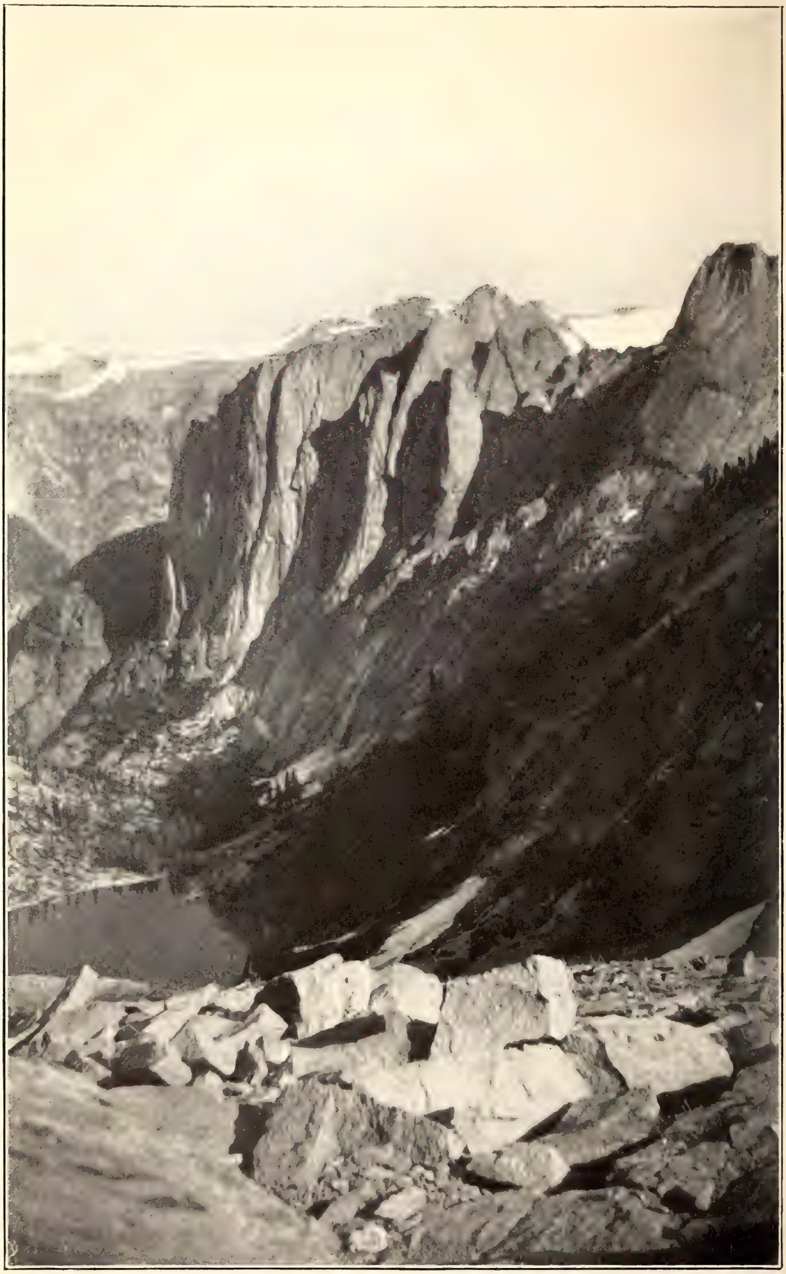
NATIONAL PARK NOTES 241

FORESTRY NOTES 253

BOOK REVIEWS 258

Correspondence concerning the distribution and sale of the publications of the Club with reference to advertising rates and space location, and concerning its business generally, should be addressed to the Secretary of the Sierra Club, Room 402 Mills Building, San Francisco, California.

PRICE, 50 CENTS PER COPY



HEAD OF DEER CREEK CAÑON, LOOKING TOWARD
MIDDLE FORK OF KAWEAH RIVER
Photo by Walter L. Huber

SIERRA CLUB BULLETIN

VOLUME TEN
NUMBER TWO

SAN FRANCISCO
JANUARY
1917

Smithsonian Institution
APR 13 1917
National Museum.

THE SIERRA CLUB

By Joseph N. Le Conte

THE true grandeur of our Sierra Nevada was first opened to the world by the discovery of the Yosemite Valley in 1851. In spite of the difficulties of travel, a great many people found their way into this famous valley during the early fifties, at a time when access was possible only on horseback and over the roughest of trails. It is not surprising then that these hardy pioneers soon discovered that the Yosemite was only the gateway to a vast alpine region whose equal was not to be found within the boundaries of the United States. Incited by the reports of early explorers, in the summer of 1863 Professor J. D. Whitney, chief of the California Geological Survey, which was created by act of legislature in 1860, decided to send an exploring party into this remote region. The results of this first scientific expedition were so remarkable that in 1864 a second party was sent to explore the basins of the Kings and San Joaquin rivers. The results of this early reconnaissance are to be found in volume I of the reports of the Geological Survey of California, published in 1865.

To J. D. Whitney, therefore, and his associates, William H. Brewer, Clarence King, J. T. Gardner, and Charles F. Hoffmann, belong the credit of first exploring, describing, and mapping in outline this great area of difficult country.

In 1868 John Muir came to California and immediately made his way into the Yosemite Valley, which by this time was renowned throughout the world. He at once began his travels and studies in the high Sierra, and his first contribution to the literature of this subject was published in 1871. From then on to the time of his death, his writings, more than any one thing, have directed the attention of the public to the wonders of the Sierra.

Beginning about 1870, expeditions were formed by enthusiastic mountain-lovers simply for the purpose of exploring and enjoying the high Sierra. But these also were but pioneers, and each party was obliged to work its own way through independently, making use of the trails of the sheepmen who at a very early date began using the rich pasturage of the alpine meadows. Practically no detailed information was to be obtained then in any published accounts. All descriptions so far were of a general nature and lacked that accuracy of detail of route and trail so necessary to the traveler.

It finally became evident that some organization was needed whereby the experiences and practical results of travel might be brought together and preserved for the use of others to follow. This idea in a general way may have been in the minds of some of the very earliest explorers in this field, but if so no record of such has been found. The first definite move in this direction seems to have been made by Professor J. H. Senger, of the University of California, in 1886, and the beginnings are shown in a short correspondence between himself and Mr. Dennison, then State Guardian of the Yosemite Valley. Professor Senger's first idea was to establish a library of mountaineering literature in the Yosemite Valley, bringing together not only all books relating to the California mountains, but collecting all published maps, as well as sketch-maps and notes and itineraries made by travelers. His idea was evidently that Yosemite would be the natural starting-point from which all trips would be made. Later the idea expanded, and by 1890 the proposition of forming a club or association was widely discussed, particularly among the students and faculty of the University of California, and the name "Sierra Club" seems to have been thought of at that time. Professor Senger discussed the matter with many of his friends, notably with Professor William D. Armes, of the state university, with Mr. Warren Olney, of San Francisco, and with John Muir. I myself realized the importance of such a club during a trip through the Kings River Sierra in 1890. At that time nothing was popularly known of the trails in that section, and our party knew nothing from day to day of what lay before us.

The one thing which finally brought matters to a head was the creation of the Yosemite, Sequoia, and General Grant national parks in October, 1890. The idea here was first conceived by Mr. Robert Underwood Johnson, editor of the *Century Magazine*. He visited Yosemite during the summer of 1889, and was persuaded by Mr. Muir to accompany him to the high Sierra region about the headwaters of the Tuolumne and Merced rivers. He noticed the sad destruction caused by sheep in the meadows and wild-flower gardens, descriptions of which he had read in Mr. Muir's articles, and on his return he urged the formation of a great national park which should include this upper region, offering to Mr. Muir the use of the *Century Magazine* to put before the public a proper description of this and other scenic wonders of the Sierra. Right gladly Mr. Muir took up the work, and, energetically backed by those who afterward were founders of the Sierra Club, the necessary bills were passed through Congress and signed by President Cleveland.

The formation of the Sierra Club was now no longer a matter of doubt. It was decided to abandon the idea of headquarters in Yosemite Valley, as that was obviously inappropriate to the broader idea, and to make the place of business San Francisco.

On January 11, 1892, Professor Senger, encouraged by the universal interest shown, wrote to Mr. Olney, whose letter in reply follows:

PROF. HENRY SENGER, SAN FRANCISCO, Jan. 14, 1892.

Dear Sir: Your favor of the 11th was not received until yesterday.

I should be pleased to confer with you in regard to the forming of a Sierra Club. Don't know that I could take an active part, but should be pleased to be present at the birth of the Club.

Truly yours,
WARREN OLNEY

On Saturday, January 16, Professor Senger called at Mr. Olney's office and the matter was discussed, this being the first of several such informal discussions. Finally it was decided to call a meeting of interested persons for purposes of organization. The following letter from John Muir, dated May 10, 1892, and reproduced in Plate CLVI, is the earliest I have been able to find from him bearing on this subject:

MR. HENRY SENGER, MARTINEZ, May 10, 1892.

Dear Sir: I am greatly interested in the formation of an Alpine Club, and think with you and Mr. Olney that the time has come when such a club should be organized. You may count on me as a member and as willing to do all in my power to further the interests of such a club. I shall be glad to see you at my house near Martinez, or to meet you in the city. Mr. Armes of the State University is also interested in the organization of such a club, and I advise you to correspond with him.

Yours truly,
JOHN MUIR

Shortly afterward came a second letter from Mr. Muir, which was as follows:

PROF. SENGER, MARTINEZ, May 22.

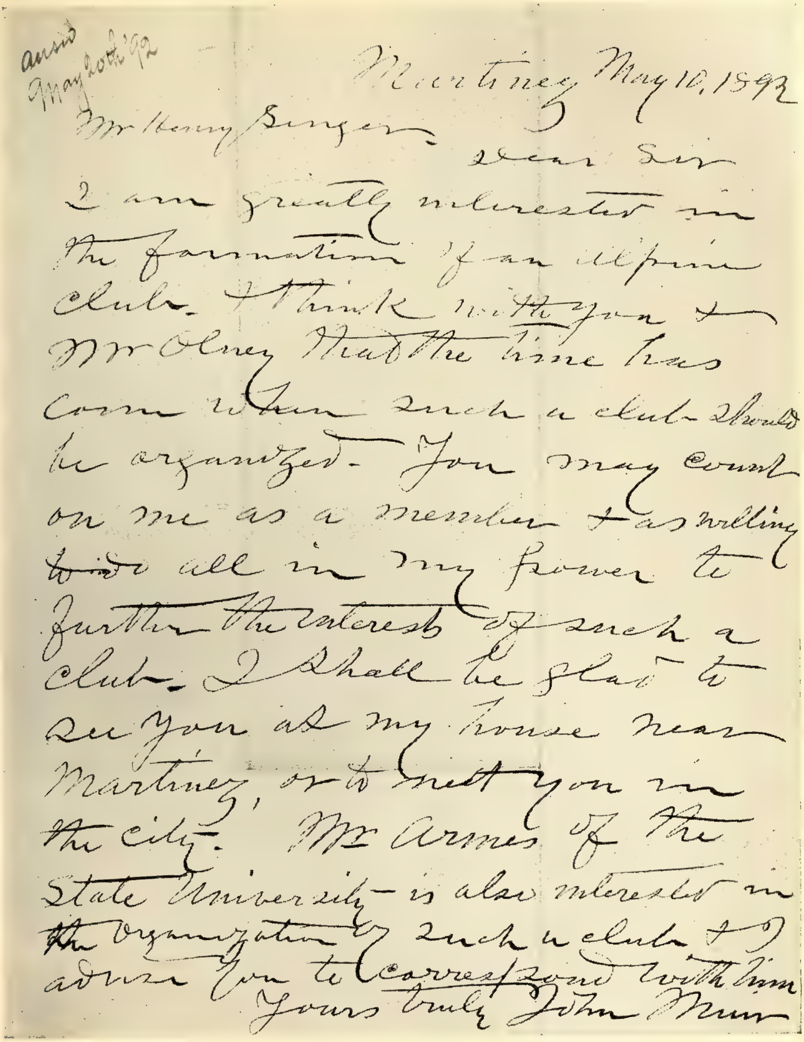
Dear Sir: I will gladly attend the meeting on Saturday next at Mr. Olney's office.

I suppose it will not be best to have a large number present at the first meeting. I should like to have Mr. Thos. Magee invited as likely to prove useful and Mr. Pelham Ames.

Hoping that we will be able to do something for wildness and make the mountains glad, I remain

Cordially yours,
JOHN MUIR

This mentions a meeting to be called on "Saturday next," which was Saturday, May 28, one week before the articles of incor-



answd May 20th '92

Martinez May 10, 1892

Mr Henry Senger

Dear Sir

I am greatly interested in the formation of an Alpine club. I think with you & Mr Olney that the time has come when such a club should be organized. You may count on me as a member & as willing to do all in my power to further the interests of such a club. I shall be glad to see you at my house near Martinez, or to meet you in the city. Mr Armes of the State University is also interested in the organization of such a club & I advise you to correspond with him

Yours truly John Muir

JOHN MUIR'S FIRST LETTER ABOUT THE SIERRA CLUB

poration were signed. At this preliminary meeting the policy of the proposed Sierra Club was outlined, and it was left to Mr. Olney to draw up the papers necessary for incorporation.

The next meeting was on Saturday, June 4, 1892, and at this the agreement of association, the articles of incorporation, and the by-laws were signed. The first board of directors was elected and consisted of:

JOHN MUIR, President,
WARREN OLNEY, First Vice-President,
J. C. BRANNER, Second Vice-President,
WILLIAM D. ARMES, Secretary,
J. H. SENGER, Corresponding Secretary,
MARK B. KERR, Treasurer,
D. S. JORDAN,
W. D. JOHNSON,
R. M. PRICE.

It will be noticed that John Muir was the first president, and he held that office for twenty-two years, until the time of his death.

The purposes set forth in, and the wording of, the articles of incorporation show a great deal of thought and care in the preparation. Throughout the entire twenty-five years of active life of the club they have served the purpose admirably. If drawn today to serve present needs of our club, they could not have been put in better form. Inasmuch as they appear in complete form only in Publication No. 1 of the club, which is now entirely out of print, I shall quote them in full.

ARTICLES OF INCORPORATION

Know all men by these presents:

That we, the undersigned, a majority of whom are citizens and residents of the State of California, have this day voluntarily associated ourselves together for the purpose of forming a Corporation under the laws of the State of California. *And we hereby certify as follows, to-wit:*

I.

That the name of said Corporation shall be the SIERRA CLUB.

II.

That the said Association is made, and the said Corporation is formed, not for pecuniary profit.

III.

That the purposes for which this Corporation is formed are as follows, to-wit: To explore, enjoy and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and government in preserving the forests and other natural features of the Sierra Nevada Mountains; to take, acquire, purchase, hold, sell and convey real and personal property, and to mortgage or pledge the same for the purpose of securing any indebtedness which the Corporation may incur, and to make and enter into any and all obligations, contracts and agreements concerning or relating to the business or affairs of the Corporation, or the management of its property.

IV.

That the place where the principal business of said Corporation is to be transacted is the City and County of San Francisco, State of California.

V.

That the term for which said Corporation is to exist is fifty years from and after the date of its incorporation.

VI.

That the number of Directors or Trustees of said Corporation shall be nine (9), and that the names and residences of the Directors or Trustees who are appointed for the first year, to serve until the election and qualification of their successors, are as follows, to-wit:

JOHN MUIR, Martinez, Cal.
WARREN OLNEY, Oakland, Cal.
J. H. SENGER, San Francisco, Cal.
WILLIAM D. ARMES, Oakland, Cal.
DAVID S. JORDAN, Palo Alto, Cal.
R. M. PRICE, Berkeley, Cal.
MARK BRICKELL KERR, Golden Gate, Alameda Co., Cal.
WILLARD D. JOHNSON, Berkeley, Cal.
JOHN C. BRANNER, Palo Alto, Cal.

VII.

That the said Corporation has, and shall have, no capital stock. *And we further certify and declare:* That the above-named Directors of the Corporation were duly elected Directors thereof by the members of said Corporation, at an election for Directors held at 101 Sansome Street, in the City and County of San Francisco, State of California, at eleven A. M., on this fourth day of June, 1892, and that a majority of members of said Association and Corporation were present and voted at said election, and that at such election each of said Directors received the votes of a majority of the members of the Corporation present; as more fully appears from the certificate of the two Tellers of Election hereunto annexed and hereby referred to and made part hereof.

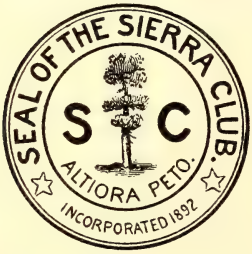
In witness whereof, we have hereunto set our hands and seals this fourth day of June, A. D. 1892.

W. H. Beatty,
Ralph C. Harrison,
George C. Perkins,
G. B. Bayley,
John C. Branner,
James O. Griffin,
Willard D. Johnson,
Josiah Keep,
Hermann Kower,
Hubert P. Dyer,
W. H. Henry,
L. de F. Bartlett,
W. L. Jepson, Jr.,
Warren Olney.
John Muir,
J. H. Senger,
William D. Armes,
Mark Brickell Kerr,
Dorville Libby,
Charles A. Bailey,
C. D. Robinson,
C. B. Bradley,
Fred S. Pheby,
Charles G. Harker,
R. M. Price,
Will Denman,
Warren Gregory.

The certificate of the Secretary of State of the State of California was issued June 17, 1892. It will be noticed in reading the above purposes of the club that they show two distinct points of view, which seem to reflect the characters of the two most active organizers. A club to "explore, enjoy and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them" was evidently the first idea conceived of by Professor Senger, while the purpose of "enlisting the support and co-operation of the people and the government in preserving the forests and other natural features of the Sierra Nevada Mountains" shows the legal mind of Mr. Olney.

The club began its work in a modest way with a charter membership of 182, but from the first it began developing along all the lines laid down by its founders. The first publication, issued in the summer of 1892, has already been referred to as containing the articles of incorporation and by-laws. The first Bulletin appeared January, 1893, and the second in June of the same year. These first three publications were of smaller size than the present Bulletin, being only about 5 by 8 inches. Beginning January, 1894, the Bulletin was enlarged to its present form. In 1893 also there were published two outline maps, one of the Yosemite and the other of the Kings River High Sierra, which were the only maps of the high mountains at that time showing trails and routes. From the first also the club took an active part in the protection of the national parks. As early as October, 1892, the club considered, took action against, and by its influence defeated the so-called Caminetti Bill which proposed to cut down the boundaries of the Yosemite National Park, and it also protested against certain illegal timber-cutting in national parks. Money was also appropriated for the improvement of trails and marking of routes in the Tuolumne Sierra.

The question of a seal came up at an early date. When first organized a simple seal was adopted, showing a pine tree within a circular margin, with the words "Altiora peto" below. In the spring of 1894 Mr. Willis Polk designed the present seal, with the *Sequoia gigantea* in the foreground, Half Dome and a typical alpine group, Mount Ritter and Banner Peak, in the distance.


SEAL OF THE SIERRA CLUB.
S C
ALTIORA PETO.
INCORPORATED 1892

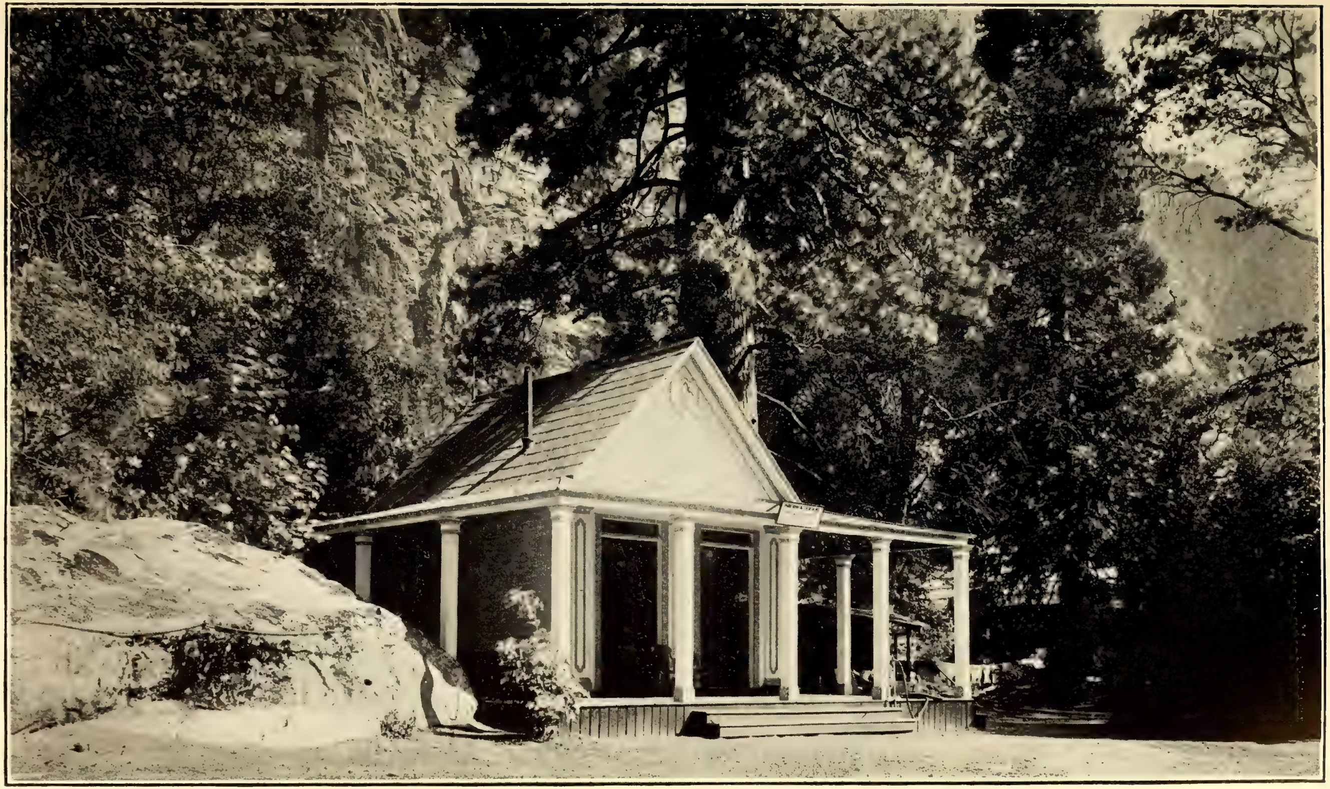
The old Sierra Club seal

It would be quite impossible in the short space of this article to follow all the labors and achievements of the Sierra Club, and besides the later work is already well known to a majority of the members; so I merely mention here the most important pieces of work that it has carried through or aided in carrying through to successful completion. In 1893 the great Sierra Forest Reserves were established; a movement which had always been strongly urged and fostered by the founders of the club. In the fall of 1895 a large and enthusiastic meeting of the club was held,* and notable addresses on the subject of forest preservation were made by Professor Le Conte, Mr. Muir, and Professor Dudley. The effect of this was to give the club's unqualified indorsement to the policy of forest reserves, and this greatly aided in the creation of new reserves soon afterward.

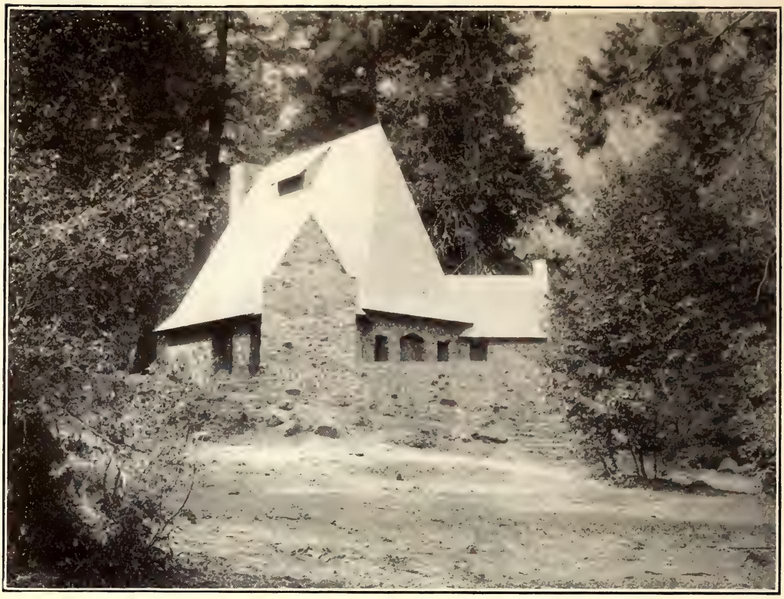
The next important work was the establishment of the Yosemite headquarters in 1898. The summer before it was

---

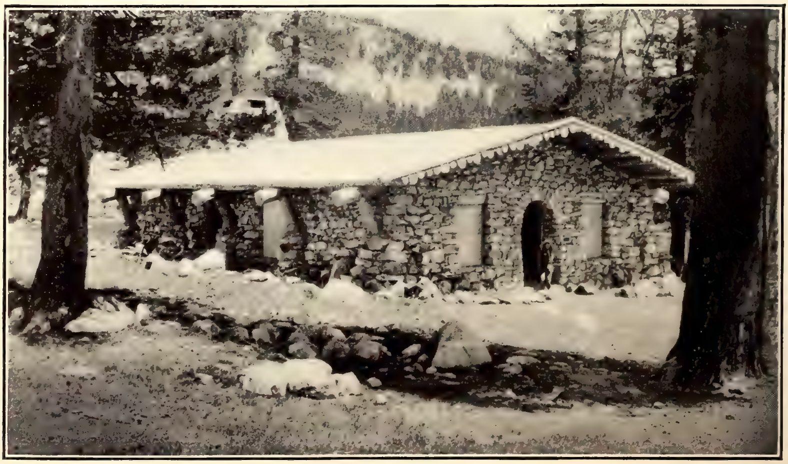
* Sierra Club Bulletin, Vol. I, p. 268.



FIRST HEADQUARTERS OF THE SIERRA CLUB IN YOSEMITE VALLEY (1898)
Photo by J. N. Le Conte



LE CONTE MEMORIAL LODGE
Photo by J. N. Le Conte



PARSONS MEMORIAL LODGE
Photo by R. H. Bailey

suggested to the writer by Mr. Abbott Kinney, of Los Angeles, then a member of the State Board of Yosemite Commissioners, that the club establish a public reading-room and bureau of information such as originally contemplated by Professor Senger. The matter was brought to the attention of the commission, and it was agreed that the state should grant the use of a building, to be furnished and equipped by our club, the salary of the custodian to be shared equally by the commission and the Sierra Club. The old Sinning cottage, opposite the present superintendent's office, was fitted up during the spring of 1898, and the club was most fortunate in securing the services of Mr. William E. Colby as the first custodian. The headquarters were maintained in this way for several years, though with difficulty, since after the first three years the State Commission was obliged to withdraw its financial support, due to lack of funds. Finally, after the death of Professor Joseph Le Conte in the valley, in 1901, it was decided to erect a memorial lodge, which should also be used as a permanent headquarters. A fund of $6000 was raised by subscription, and the beautiful stone building with its bronze medallion of Professor Le Conte over the fireplace was finished and dedicated in 1904.

One of the most important developments in the history of the club, which came about this time, was the organization of the annual outings in 1901. In 1900 Mr. Colby was elected to the board of directors, and made secretary, and through his efforts and those of Mr. E. T. Parsons the directors authorized the annual outing feature. The first outing was in the Tuolumne Meadows in 1901, the second in the Kings River Cañon, and the third on the Kern. Since the beginning, the outings have steadily grown in size and perfection of organization, until now they stand out as the most popular single feature of the club and a model for other mountaineering clubs.

The most important piece of work in which the club has ever engaged was the passage of a bill through the legislature receding the Yosemite State Park to the Government, and the subsequent acceptance of it by Congress as a part of the national park. Ever since the creation of the Yosemite National Park, the state park, originally established June 30, 1864, required an entirely needless duplication of administration within the boundaries of the larger grant. This recession was vigorously opposed by many of the members of the legislature, and by some of the press as well, and it is generally conceded that except for the strenuous work done by the Sierra Club the bill, carried as it was by so small a margin, would never have gone through. The good effects of this combination can now be easily recognized. Whereas the state was never able to appropriate over $10,000 per annum, and usually less, Congress gave $250,000 last year for the Yosemite National Park, and we are asking for $319,000 this year.

About 1904, members residing in the vicinity of San Francisco suggested the idea of local Sunday walks which could be arranged by a committee and announced in advance, thus giving those who could not afford the time for the summer outing an opportunity to enjoy the beauties of nature in a milder way. These first walks were announced in the advertising columns of the daily papers each week, but soon this was replaced by the regular printed schedule as at present. The local walks have proved a great success, and these, together with the outings, have done much to bring the membership of the club up to its present large figure.

An increasing number of members from southern California led to the establishment of the Southern California Section with headquarters in Los Angeles in 1905, when the revised by-laws were adopted by vote of the club in April of that year. It has erected through private subscription the John Muir Lodge in the Santa Anita Cañon.

In 1912 it was called to the attention of the directors of the club that the famous Lambert Soda Springs property was for sale. In order to prevent its passing into improper hands, Mr. Colby promptly took an option on the property, and a year later the entire amount of the purchase price was raised by subscription amongst the club membership. After the death of Mr. E. T. Parsons, in 1914, it was decided to erect on the property a suitable stone building, to be known as the Parsons Memorial Lodge. This was accordingly done in 1915, at an expense of about $3000. It is now open in charge of a custodian each summer.

One of the recent good deeds of the club has been the saving of the remarkable and unique Devil's Postpile from destruction. When an application was filed with the Bureau of Forestry for a permit to blast it into the river to form a dam for power purposes, the directors took the matter up at once, and by personal letters to President Taft succeeded in having both the Postpile and the Rainbow Fall made into a national monument.

The Sierra Club conceived the idea of the John Muir Trail, for the starting of which the legislature appropriated $10,000 two years ago. We need an additional appropriation to finish it and money to extend it northward to Lake Tahoe, and all members of the club should urge the members of the state legislature to appropriate the $20,000 required for its completion. The greatest work which lies before us this winter is the passage through Congress of a bill which shall create a Greater Sequoia Park, including the headwaters of the Kern, Kaweah, and Kings rivers, and a small portion of those of the San Joaquin.

The club is now in a flourishing condition. It has over 1800 members, and its income from dues and advertising is some $5000 per annum. Its publications fill nine volumes, and these contain practically all the results of exploration in the high Sierra during the past twenty-five years, as well as work in other mountain regions. Let every one then put his shoulder to the wheel, so that, as Mr. Muir says in his letter, "We will be able to do something for wildness and make the mountains glad."

TO THE MEMORY OF JOHN MUIR

By C. Hart Merriam

◆

JOHN MUIR was doubtless more widely known and more generally loved than any other Californian. He was a famous wanderer, and left a trail that is well worth following. It leads to the mountains and forests, to health and happiness, and to a better appreciation of nature. While he loved the mountains and everything in them, his chief interests centered about the dynamic forces that shaped their features and the vegetation that clothed their slopes.

But, of all the objects in nature, trees appealed to him most strongly. These he knew as no other man has known them. They were ever-present in his mind and formed an inexhaustible theme of conversation. On his walks and in his study he delighted to talk of their individual peculiarities, and with his pencil he would make rough but characteristic sketches showing the dominant distinctive features of each species. He knew the dates of flowering and the differences of the sexes, and could tell offhand the time required by the several pines for maturing their cones. In nearly every case he could recognize a tree at a distance by its general habit, and when specimens were shown him he could identify them at a glance by the branches, flowers, fruit, or bark.

To gratify his love of forests and increase his knowledge of them he traveled far, studying not only those of the Pacific Coast from Alaska and British Columbia to southern California, those of the Rocky Mountains from Montana to Arizona, those of the Eastern states in both the northern and southern Alleghanies and in the pine barrens and everglades of Florida, but also traversing Russia, Siberia, and India, visiting Australia, New Zealand, and the Philippines, and late in life even journeying to South America to see for himself the great tropical forests of the Amazon and the remarkable Araucaria of western Patagonia. Has any other human eye seen so many and diverse types of arboreous vegetation, or any other mind learned so much of the great forests of the world?

One often hears Muir spoken of as an authority on the animal life of the mountains. This is an error. For while he liked to see birds and mammals in the wilderness and about his camps, he rarely troubled himself to learn their proper names and relationships. Now and then a particular species impressed itself sufficiently upon his attention to appear in his writings, and in a few instances to form the subject of a special article or chapter. His accounts of the water-ouzel and Sierra red squirrel—which latter he confused with the Douglas squirrel of the coast—are real contributions to natural history, abounding in original observations, full of sympathy, and charmingly told. But for scientific study of the great army of small birds and mammals he cared little. Plants, on the other hand, were always dear to him; he knew the names of hundreds of species and could tell at what altitude and in what situation each was likely to be found.

He had a strong mechanical bent, was fond of machinery, quick to grasp principles of mechanics, and was familiar with the various applications of power. He loved to study the forces of nature, and was one of the first to recognize the part played by ice in sculpturing mountains, cañons, and valleys.

In 1870 or 1871 Muir took my father to Clouds Rest, from which lofty outlook he pointed with enthusiasm and conviction to the several channels through which deep rivers of ice had found their way before uniting to form the glacier that had plowed out and shaped Yosemite Valley. And later, when traveling together in the upper Tuolumne and Mokelumne regions, he often surprised me by the extent of his knowledge of the depth of the former glaciers and the details of ice action in those parts. It is a pity that his early studies of the ancient glaciers of the Sierra were not recorded in permanent form, but a matter of congratulation that his observations of those of Alaska have finally been published.*

Muir was a great talker, but not a loud talker. And although he usually monopolized the conversation, he was listened to with attention and often with delight. Like most men who have spent much of their lives in the mountains, he was an independent thinker and had well-digested opinions on a surprisingly large number of topics. He was argumentative by nature, and his Scotch blood showed in the persistence and tenacity with which he upheld his point of view. On the other hand, he was rarely aggressive or disagreeable. In fact, he was one of the most charming companions I have ever known. In addition to a kindly and generous nature, he possessed a keen sense of humor and was something of a tease. When walking the deck of the steamer on the Harriman Alaska Expedition, his most constant companion was the eminent geographer, the late Henry Gannett. Speaking of their friendship, he explained that when he first saw Gannett he was impressed by what he called the "preternatural solemnity" of his expression. This, he asserted, with a merry look in his eye, had convinced him that Gannett, like himself, was fond of humor, and he was not long in learning that Gannett, though not a Scotchman, also loved an argument. The result was that the two were always happy together.

---

* See "On the Glaciation of the Arctic and Sub-Arctic Regions visited by the United States Steamer 'Corwin' in the year 1881." In U. S. Senate documents, 48th Congress, 1st session. Vol. 8, No. 204, pp. 135-147.

"Notes on the Pacific Coast Glaciers." In Harriman Alaska Expedition. Vol. 1, pp. 119-135. 1901.

"Travels in Alaska." 1915.

Muir abhorred politics, and once, when speaking of a man whom he regarded as having fallen from grace, remarked, "This playing at politics saps the very foundations of righteousness."

As a woodsman he was peculiar, combining an unusual knowledge of forest and mountain with a remarkably slender fund of what is commonly called woodcraft. For, in spite of his having spent a large part of his life in the wilderness, he knew less about camping than almost any man I have ever camped with. He could choose a sheltered spot for the night, was an adept in building a small fire in a safe place, and could make an excellent cup of coffee in his tin cup. But of the art and conveniences of camping as ordinarily understood he was as innocent as a child. His earlier trips in the mountains had been made afoot. He had carried no bed or blanket, and in the way of food only bread and tea, so that his main concern was in finding a protected place, usually a hollow beside a log, where he could spend the night with a minimum of discomfort from the cold. The heat of a small fire, requiring frequent replenishment, served instead of the usual sleeping-bag or blankets.

In after years his visits to the mountains were made with others who looked after the camping. I shall never forget the equipment he brought on his first trip with me into the High Sierra. It was in the late fall, when we were likely to meet a snow-storm at any time. And in fact two such storms overtook us—one in Mokelumne Pass, the other in Mono Pass. Our route lay in the high mountains from Lake Tahoe to Bloody Cañon. The outfit he brought consisted of the clothes he wore and a small leather grip containing a clean shirt, a change of underclothing, and some extra socks. In spite of the lateness of the season, the high altitude, the icy nights, the almost certainty of snow-storms—in spite of all these, he carried not so much as a single blanket!

In reply to my inquiry as to the whereabouts of his bed, he replied that he had tramped the mountains for years, but had never carried one. I was amazed, but the condition confronting us permitted no compromise. I told him, therefore, that, although he had frequently slept on the ground without covering in summer when many years younger, he was too old to do so now, particularly at this late season of the year. I told him also that I had a good sleeping-bag, just big enough for one, with no extra blankets for two, and, further, that it was out of the question for me to set out on such a trip with a companion who had no bed. Recognizing the justice of my argument, he compromised by asking, "Where can I buy a bed in the mountains?" This problem was soon solved and the trip was carried out as had been planned. It may be added that, although my ground-canvas was a large one and did duty for us both, as we slept close together, yet the severity of the weather was such that he suffered nearly every night from cold. He made no complaint, but was always up and had a small fire burning and coffee brewing before full daylight. The incident is mentioned merely to emphasize a peculiarity of his character—that he rarely made any provision beforehand for his own comfort.

Another marked peculiarity for a woodsman was that he never carried a gun or killed game either for sport or meat, preferring to eat dry bread.

He was a light eater and never seemed really hungry. Even when tired after a long tramp or arduous horseback ride, he would rather talk than eat, and, as many who have camped with him know, he often had to be urged to eat in order that the camp-dishes might be packed to move on. And more than once his companions at the table have quietly taken what was on his plate while he, without noticing what had been done, kept right on talking. I remember an occasion when a plate of fried trout was set before him. It was well in the afternoon, and he had had nothing to eat since a six-o'clock breakfast; he had walked many miles and was tired. Nevertheless, he talked continuously of the forest and mountains through which he had gone, and was utterly oblivious to the fact that his plate was filled and emptied three times by his neighbors, while all he had taken was a piece of bread and a cup of coffee. I finally told him that it was time to go, and that if he would stop and eat I would do the talking for a few minutes until he had finished.

Muir was a worker. He felt that he had a task to perform and little time for idling. When in the wilderness he was continually making observations and recording them in his journals. These were usually, sometimes lavishly, illustrated by sketches that served to explain or emphasize the text. When at home he was busy looking after his fruit ranch or engaged in writing; and, as the years went by, the latter occupation consumed most of his time. While he did much writing, as shown by his books and manuscripts, he never did it easily or with pleasure, but from a sense of duty. More than once he spoke to me of the difference in this respect between John Burroughs and himself. Burroughs, he said, never would write except when the mood was on him; then he wrote rapidly, and sent his manuscript to the press with little or no revision, while he (Muir) made it his business to write every day, whether in the mood or not. To him writing was laborious, if not irksome, and much time was spent in smoothing, balancing, paragraphing, and arranging it for the press. He possessed a surprising amount of literary acumen, and usually cut out and trimmed down much that he had written, saying it was a serious error to dwell too long on one detail; that the reader wearied of a single theme, and should be led along by frequent changes. He had never used a stenographer until a few years before his death. When visiting the late E. H. Harriman at his Pelican Bay camp on Klamath Lake, Mr. Harriman had urged him to dictate an outline of his life. This he finally consented to attempt, dictating to one of Mr. Harriman's stenographers. The result formed the basis of his autobiography, since published.

While Muir was a man of marked individuality and pronounced tastes, and while at one period of his life he was much alone, he nevertheless prized congenial companionship and numbered among his friends men eminent in constructive enterprise as well as in art, literature, and science. His most intimate friends perhaps, outside his own family, were the educator John Swett and the painter William Keith. Keith, like himself, was a Scotchman, and the two were great cronies. To hear them spar in their native dialect was a real treat.

How much Muir's life work was influenced by his family it would be hard to say. His wife, who died a few years before he did, was a woman of more than ordinary character and ability. For years she relieved him of most of the cares of the home ranch at Martinez and a thousand and one little things that would have worried him or interrupted his work. She was a clever and noble woman, but so retiring that she was known to only a few. He owed much also to the sympathetic loyalty of his two daughters, Helen and Wanda, who, like their mother, were devoted to him and the work he was doing.

Muir's influence has been a strong factor in the development of our national parks and forests and in their utilization as camping and recreation grounds, while to the people who could not go his writings have brought from the trees and mountains an inspiration and message of happiness.

TEN VOLUMES OF PUBLICATIONS

1892 TO 1917

BY ELLIOTT MCALLISTER

◆

THE activities of the Sierra Club during the past twenty-five years have found a faithful record in its publications. Ample reward follows an examination of those records. In the earlier volumes are found narratives of many pioneer trips into regions that are now well known to many members of the club. The explorations of Theodore S. Solomons, of Robert M. Price, of Bolton Coit Brown, and the winter trips of J. E. Church, Jr., are all notable in that regard. At that time J. N. Le Conte commenced the publication of his valuable maps of the High Sierra. The accuracy of these can be appreciated only by one who has had occasion to use them. More interesting than any of the fine photographs appearing throughout the publications are the original sketches of the high mountain regions made by Bolton Coit Brown.

Joseph Le Conte's *Ramblings Through the High Sierra,* the diary of his trip through the Yosemite in 1870, which had been privately printed in 1875, was republished by the club in 1900 in volume III.

All of these reports and accounts of what awaited the explorer brought about the demand for that splendid undertaking of the club, its summer outing. Until 1900 the club had been telling its members of the beauties and wonders that awaited them, but not until that year had anyone been found willing to undertake the responsibility and labor attending upon organization and control of an outing for all members that desired to attend. At that time, however, the Outing Committee, composed of J. N. Le Conte, E. T. Parsons, A. I. Street, and William E. Colby, accepted this work, and in 1901 conducted the first outing into the Tuolumne Meadows and from that point into the High Sierra.

From the outset these summer outings were recognized as one of the primary activities of the club, and after the necessary experience acquired during the first, second, and third seasons they have been of increasing success. The leaders of the club in these outings have taken less-experienced members up every notable mountain peak from Mount Rainier in the north to Mount Whitney in the south; more particularly the region from the Lyell group east of Yosemite and south to Mount Whitney has been "explored, enjoyed, and rendered accessible," to quote from the articles of incorporation, and "authentic information published" in a way to compel the respect and coöperation of the state and federal authorities.

Each of the outings had its faithful historian. The first one, into Tuolumne Meadows in 1901, was described by Edward Taylor Parsons. In these meadows fourteen years later the memorial lodge to him was dedicated by his grateful and appreciative fellow-members. These descriptions of the outings, together with the other articles by individuals, have furnished such a large amount of interesting matter and picture the life of the club in the High Sierra so well that no less a person than the distinguished mountain-climber Sir Martin Conway writes the club under date of April, 1912:

> The Sierra Club seems to me to preserve much of the old spirit which was in Alpine climbers in the days when climbing was a fresh thing. I like to think of your camping parties in the great forest valleys and along their vast far-seeing slopes. I like to think of the great trout found in the streams you have stocked. I like to think of all the good you are doing and trying to do in forest conservation.

The above is from a man whose record in the Bolivian Andes was Mount Aconcagua (23,090 feet).

Edward Whymper enjoyed these publications and expressed this appreciation in the substantial bequest to the club of £50.

The late William Russell Dudley, from the beginning of our publications until his death, in 1911, kept us constantly informed in his carefully edited Forestry Notes. For over sixteen years he patiently recorded and published in Forestry Notes any occurrence pertinent to forestry, reservations, national parks, and kindred subjects. The indebtedness of the club to him for this work is very great. These files always will be a useful reference for anyone interested in the subject.

The articles on the geological conditions of our mountains, such as the domes and their structure, lake ramparts, glacial erosion, may be mentioned among those contributed by men well known in that special work. More particularly might be mentioned the articles on the birds of the mountains and the remarkable photographs connected therewith. *Birds of the High Mountains*, by Kellogg, numerous articles by Badè, and a very remarkable photograph of the water-ouzel at page 245, volume VI, are worthy of special note.

The reader searching for information on the cone-bearing trees or on the flora of the Yosemite Valley will find authoritative accounts, and throughout all the volumes many have expressed their appreciation in poetry or in prose of the wonders to be found throughout our Sierra Nevada Mountains.

The work of the Sierra Club having been firmly established under the distinguished leadership of John Muir, will not fail now that he is gone, but will continue to broaden its scope and to increase its influence.

THE WAR-ZONE FOREST OF THE KERN

By Walter Mulford

◆

THE Chagoopa Plateau, with its Sky-Parlor Meadow, its Moraine Lake, its forest of subalpine pines, and its rock-ribbed ring of impressive peaks—what a joy it was! Sunrise over Mount Whitney and the main crest of the Sierra; sunset behind the Great Western Divide, outlined sharply but not harshly across the lake; the climb heavenward to the top of Kaweah; the descent to the beautiful cañon of the Big Arroyo; the brilliant moonlight, making lodgepole and foxtail more impressive and hiding for a time the scars of the grim fight waged by these hardy pines against frost and wind, drought and beetle—to those of us who were there nothing further is needed to recall happy memories of a camp-site richly endowed with charm and interest and comfort. Some of us went on long side-trips. Some of us, responsive to the influence of high life, indulged in that wild camp cabaret. Some of us even tried to get lost on that confusing plateau. Finally, all of us passed on, more or less thoughtlessly, to other parts of the wonderland.

More or less thoughtlessly! If anyone had asked us whether we would wish the beauty of that high plateau to be permanent, there could have been but one answer. If we had been asked further whether it would still be beautiful without the forest, there would have come an equally emphatic reply. Treeless wastes are fascinating—or repellent. They are often inspiring in their bigness, in their evidence of great power behind and beyond. But they are rarely beautiful. And they are never good places in which to live or camp. Unconsciously we knew that we owed the beauty and comfort of our Chagoopa camp primarily to the forest. Did we stop to wonder whether the forest would be there always?

Perhaps we did not notice the signs of social instability in this community of Chagoopa Forest. Most of the citizens are old folks—several centuries old, although only from one to three feet in diameter. Very many of them are far past their prime, and their "spike-tops,"* most of which are due to old age or insect attack, show that soon there will be many vacant places in the big family. This must be the case in all communities of trees and people. But the significant thing here is that there are very few youths and almost no children on nearly all of the plateau. And the infirmities of the old folks are likely to increase more than proportionately to their advancing age, as the death of neighbors deprives them of the mutual protection so sorely needed in exposed localities. In the forest world, Chagoopa Town is doomed unless more young trees start in the next half-century.

Nature is wasteful in Chagoopa Forest. Long searches for seedlings were practically fruitless on most parts of the plateau. Young trees were abundant only in a few places. Yet careful counts in one small grove showed an average of 450,000 lodgepole-pine seedlings per acre—more than ten per square foot! Nine hundred and ninety-nine of these must die before the thousandth tree can come to maturity, for mere lack of growing space. Thirty-story, densely thronged tenements in one part of town; thousands of vacant homes with light and air on other streets! There are perhaps six thousand acres on the plateau. There are about six acres in this area of closely packed seedlings. If Nature had spread out on one thousand acres the seedlings she has crowded on one acre, there would be an average of about 450 seedlings per acre over the entire plateau. This would be an admirable basis for the continuance of the community. But Nature rarely does things that way. She has never studied scientific management as man has studied it for the bricklayer.

Chagoopa Plateau is not an exceptional locality as regards uncertainty for the future. On that wonderful day's trip from Crabtree Meadow to Tyndall Creek we were almost constantly in a war zone. Now and again we were in the first line of trenches itself, where the last tree outposts are struggling to hold timber-line where it is. For a time we were in the uncontested territory of the treeless waste, where the forest can never enter unless the climate changes. *But on that entire day's trip we were never in the undisputed domain of the forest.* The forest is one of Nature's children. She has other children, and she lets them struggle with one another with all the strength and skill at their command. There is a firing-line and a wide war zone in all our high altitudes, where wind and frost shout "Back!" and the stubborn trees cry "Forward!" Through the centuries the battle-line surges back and forth—forward into the waste with discouraging slowness, often backward into the forest with disheartening suddenness. Nature leaves the victory to the stronger forces, and the laurel wreath does not always go to the side which civilized man desires and needs to see win.

---

* "Spike-top" means that the upper portion of the tree-crown is dead.

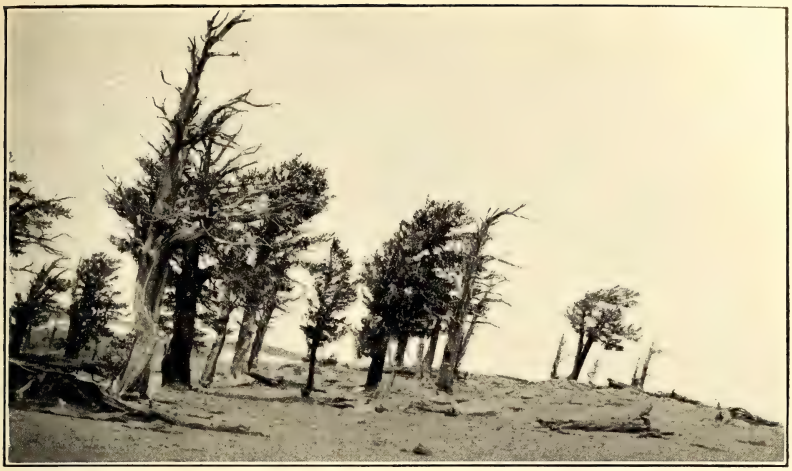
Nature is notoriously wasteful, not only in her treatment of these disputed borderlands of the forest realm, but in all forests, even those in which the results of her marvelous handiwork are most awe-inspiring. Here she places too many trees; there, too few. She almost invariably allows the most desirable trees to be more or less displaced by others which are poorer from the standpoint of their usefulness to man. Her trees do not grow nearly so fast as when she takes man's skill into partnership. The difference in time required to produce merchantable trees in timber-producing forests, as between Nature alone and Nature plus constructive man, is so great as to be measured in decades rather than years. Nature's forest was well able to meet the slight needs of savage man. Civilized man, with his vastly greater demands on the forest, must help Nature to mend her ways, else the forest fails.

It is now economically possible for man to assist Nature greatly in the middle-altitude forests of the Sierra—that is, in the great timber-producing zone. Aid of the highest importance is being given in many ways in this belt, thanks to the national forests and the national parks. In the higher zone in which Chagoopa Forest and the Crabtree-Tyndall region are located, we in the United States cannot afford at present to help directly the timber-line forest in its fight. Such help has been given in the Alps and Pyrenees by tree-planting and engineering works, to the great advantage of the valleys below. But our governmental agencies can and are giving powerful indirect help by restricting man as a destructive animal. Chagoopa Forest is in a more precarious condition now than is likely to have been the case before the white man came, because until recently fires which he started* and animals which he introduced roamed at will, while trespassers cut trees without warrant. But its future is more assured than it was twelve years ago, because fire, grazing, and trespass are now controlled. The present scarcity of seedlings is not necessarily discouraging. In situations so exposed, it may happen that young trees will start in considerable numbers only at infrequent intervals, when there happens to come a good seed-year followed by weather conditions favorable to the germination of the seed and the first few years' development of the delicate seedlings. This combination of circumstances may not have occurred since the organization of the National Forest in 1905. Even granting that planting is impracticable in that locality, there is still hope for Chagoopa Town.

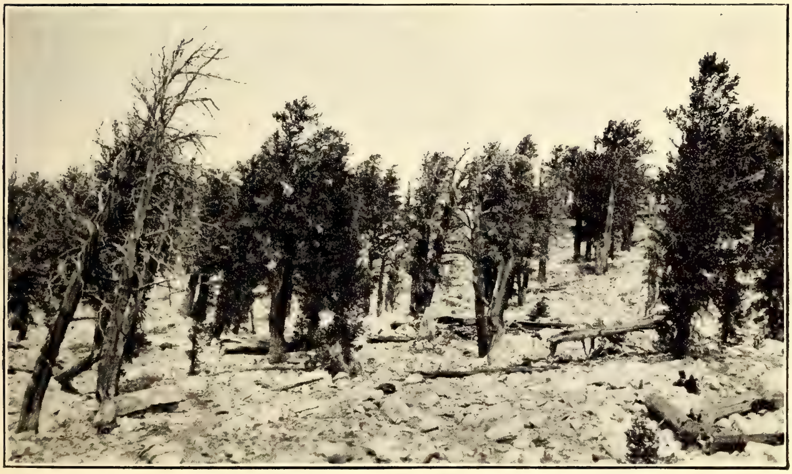
The hope centers in the continuance of the forester's care of the region. There are powerful selfish interests still at work quietly trying to undermine and finally break down the whole structure of governmental forest administration, which has been so painfully built up. The forest has all it can do along its frontier to hold back its unavoidable foes. If to its natural enemies we add man-made ones, the war-zone forest cannot stand against the onslaught. Within certain limits, man as well as Nature has a hand in determining where timber-line shall be. At least, we can see to it that there is no unholy anti-forest alliance between destructive man and the other (less ruinous?) forces of Nature. We wish you well, Chagoopa Forest!

---

* Lightning starts many fires; man starts more.



"There is a firing-line . . .

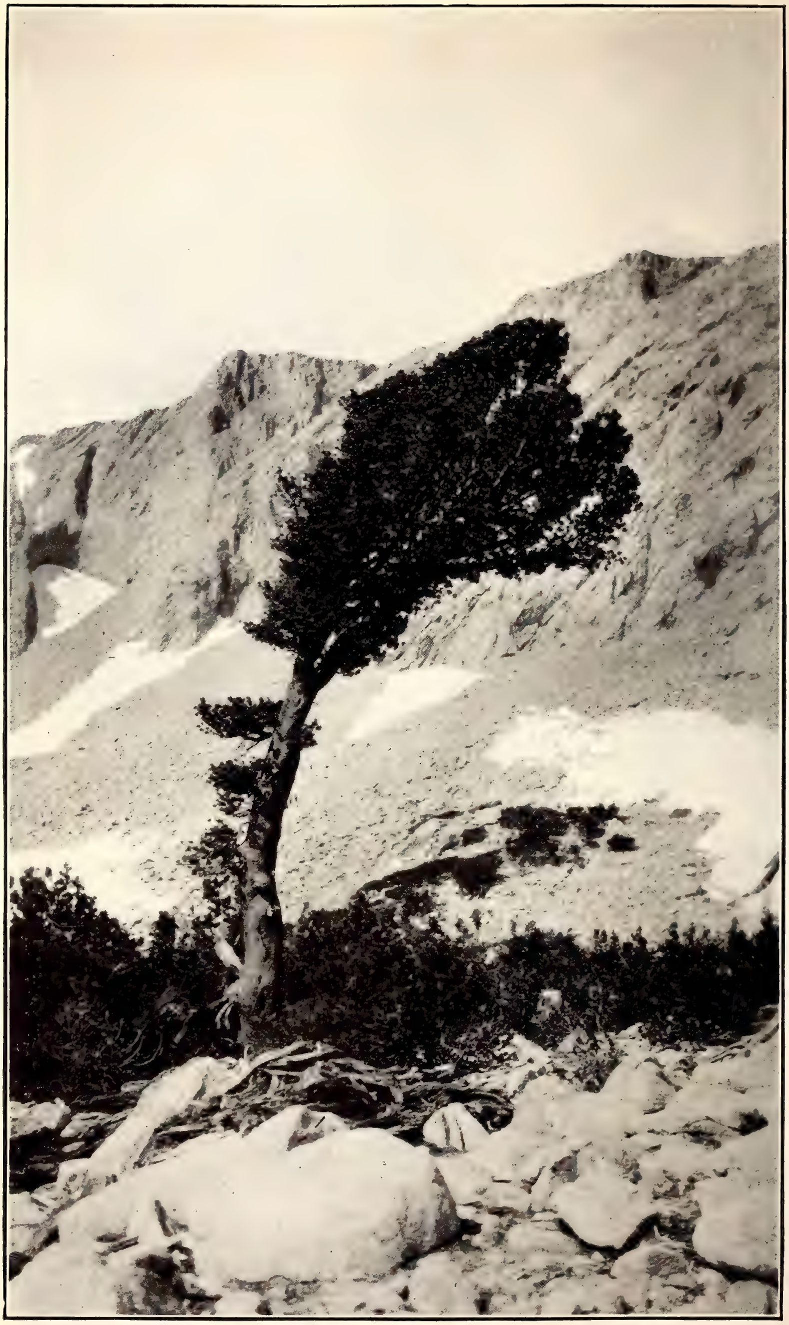


. . . and a wide war-zone in all our high altitudes"

TIMBER-LINE AND ADJACENT FOREST (FOXTAIL PINE) BETWEEN EAST FORK OF KERN RIVER AND TYNDALL CREEK

Altitude, upper photograph, 11,200 feet; lower photograph, 11,100 feet

Photos by Walter Mulford



WHITE-BARK PINE, NEAR JOHN MUIR TRAIL, SHEPARD CREEK CAÑON
(Altitude, 10,800 feet)
Photo by Walter Mulford

THE YOSEMITE CONY—A CHAPTER IN THE NATURAL HISTORY OF THE YOSEMITE NATIONAL PARK

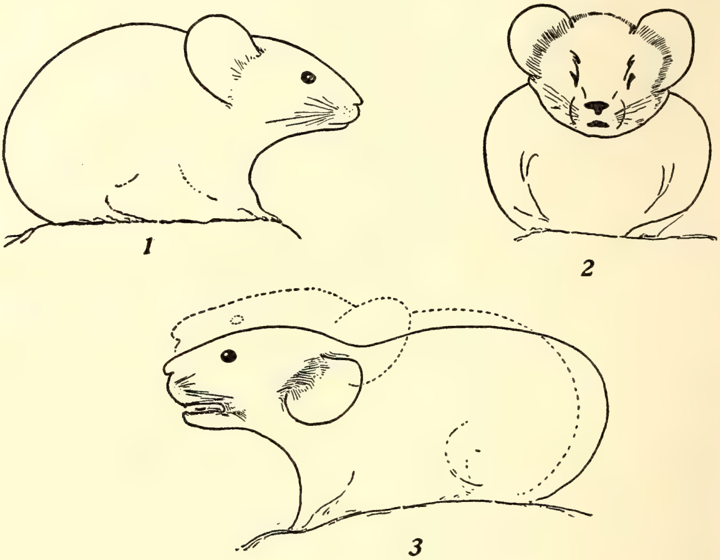
By Joseph Grinnell and Tracy I. Storer

(Contribution from the Museum of Vertebrate Zoology of the University of California)

THE cold granite peaks and rock-walled glacial valleys of the higher Sierra Nevada of California are inhabited by comparatively few mammals and birds. The species which do live there throughout the year are, by structure and habits, well adapted to withstand the vicissitudes of life in a boreal region. On the whole, it seems as if these high mountain residents have come to fill the least desirable niches in the economy of nature, those niches for which there is but little contest. Among the mammals belonging to this category in the Yosemite National Park there is none more deserving of particular attention than the cony.

The cony is remotely related to the rabbits, but in both structure and habits it differs widely from those better-known animals. The cony is small, rarely exceeding seven inches in length of body, and it is of comparatively chubby build (figs. 1 and 2). The head is short and bluntly tapered, while the neck is scarcely distinguishable. The eyes are small, but the ears are large and rounded, and this combination gives the animal a peculiarly knowing expression. The fore and hind legs are short and of about equal length, while the tail is so reduced as not to be seen except by examination of a specimen in hand. The clothing of hair is thick and fluffy. The general coloration is grayish white, but to this in late summer and fall there is added, as a result of molt, a pale brown tint. At any season this coloration is doubtless exceedingly valuable to the animal in rendering it inconspicuous; even under the best of light conditions the observer finds difficulty in catching sight of a cony except when it moves.

Conies, otherwise known as pikas, rock-rabbits, or little chief hares, are found in the mountainous districts of Russia, Asia, and northern North America. Each mountain system seems to have one or more kinds of these animals, and this is notably true of the mountains of California. In the Warner Mountains of Modoc County there is a distinct species, the Warner Mountain cony *(Ochotona taylori),* and on the Sierra-Cascade range from Mount Shasta to Mount Whitney there are no less than three slightly different forms. The northernmost of these, the gray-headed cony *(Ochotona schisticeps schisticeps),* is found from Mount Shasta south to the vicinity of Lake Tahoe; the southernmost one, the Mount Whitney cony *(Ochotona schisticeps albatus),* occurs in the vicinity of the peak for which it is named; while the third, the Yosemite cony, occupies the higher portions of the Yosemite National Park and adjacent territory. This last form was discovered by the field parties of the California Museum of Vertebrate Zoology in 1915, when engaged in making a zoological survey of the Park. It has been named *Ochotona schisticeps muiri,* in remembrance of that most gifted of Sierran naturalists, John Muir.



FIGS. 1-3. TYPICAL ATTITUDES OF THE CONY
1 and 2. On observation-post. 3. "Bleating." (About one-fourth life-size
Redrawn from field sketches made by Charles Lewis Camp)

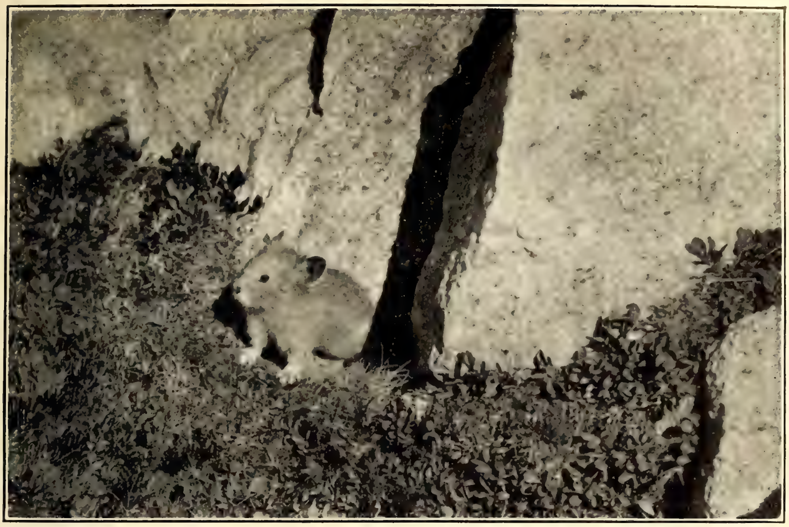
The Yosemite cony is an alpine species, found only in the higher parts of the mountains above the fir belt, in the zone occupied by the alpine hemlock, white-bark pine, heather, and cassiope. Even within this narrow area it does not live everywhere, but is restricted to a single habitat, heaps or taluses of broken granite. Altitudinally, the cony is found, in the Yosemite National Park, as low as 7700 feet, near Glen Aulin, on the Tuolumne River; upward it ranges to about 12,000 feet, as on the slopes of Mount Dana, and to the very summit of Parsons Peak, 12,120 feet. But within this restricted area the cony is found in almost every glacial moraine and talus-heap. In one typical rock-slide, at the head of Lyell Cañon, our estimates indicated a population of at least one cony per 750 square yards. This would mean a population of about six per acre in suitable slide-rock. The range of an individual is short, probably rarely exceeding the boundaries of the rock-slide which the animal inhabits. While a cony will go some distance among rocks for food materials, it will not venture more than two or three yards beyond the limits of shelter.

The summer traveler in the mountains is first apprised of the presence of conies by hearing one of the animals utter its far-off-sounding "bleat." In fact, this note, or call, is such a valuable introductory aid that even the trained field observer finds that the only practicable means of locating the animals is to wait in a suitable locality and listen intently until one of them utters its call and then to scrutinize the area whence the sound came until its maker is discerned. This call is a moderately loud two- or three-syllabled utterance, and has a nasal intonation. The quality of the note is such as to suggest the clinking together of flakes of granite. It has been variously rendered by our field observers. One writes it, *yink, yink;* another, *ke-ack', ke-ack',* or *ke-ack', ke-ack', ke-ic'-ky;* and another, *e-chak', e-chak', chee-ick', chee-ick', chee-ick'-y.* Sometimes the call is uttered but once; again it may be repeated for ten or fifteen seconds, at first rapidly, then more slowly, as if the cony's breath was being gradually exhausted. The animal accompanies its calls with certain movements which seem essential to their production (figure 3). The whole body is jerked violently forward, as if considerable exertion were necessary to expel the air from the lungs, and at the same time the ears are twitched upward, so that in face view their outlines catch the observer's eye.

For several months of each year snow covers everything within the range of the cony. The various species of animals which dwell there meet the resulting food scarcity in a number of different ways. Most of the birds emigrate, the deer and coyote descend to lower altitudes, the marmot hibernates, the gopher constructs tunnels through the snow, and the white-tailed jack-rabbit turns white and develops "snow-shoes" on its feet so that it can forage above the snow. But the cony has still another method of meeting the situation.

During the late summer and early autumn the cony is busy at all hours of the day gathering materials to serve as food while it is imprisoned among the rocks beneath the snow. It cuts and stores away grasses and sedges and other plants which grow in the vicinity of its home. These are carried into the rock-slides, and stored in a dry, well-drained, shady yet airy place, sheltered above from snow and rain, and free from the danger of running water below—an ideal barn from the standpoint of a farmer. This treatment is such as to preserve unfaded the natural colors of the dried plants, and the fragrance is that of well-cured hay free from mold. One such "hay-pile" seen by the senior author on Warren Peak, Mono County, September 26, 1915, was situated under a huge flat rock and comprised about half a cubic yard of material. Samples from a similar but smaller pile included twigs and needles of the lodgepole pine, sprigs of "ocean spray" *(Holodiscus discolor dumosa)*, two or more alpine species of sedge *(Carex)*, with their characteristically rough stems of triangular cross-section, a grass *(Poa)*, and an epilobium. The nearest sedge was twenty-five feet down-hill in a wet place, while the nearest holodiscus was at least seventy-five feet up the steep slope adjacent. Currant and red-elderberry bushes grew nearer than any of the other plants named, but neither had been touched, showing that the cony exercises some selection in the choice of its food materials.

When foraging the cony secures as large an amount of cut greens as can be held crosswise in its mouth and then carries the bundle to the "barn." Often stems of considerable length are transported in this manner, and, as the animal moves about,



A CONY AT THE MARGIN OF ITS ROCK-SLIDE HOME
Photo by H. S. Swarth

A TYPICAL OBSERVATION-POST OF THE CONY
Photo by T. I. Storer

the ends of these stems trail along beside or behind him. Many of the pieces found in the hay-piles were over a foot in length, and one piece of cut sedge measured forty-five inches in length; but this latter had been folded several times. A hay-pile seen near the head of the McClure fork of the Merced River contained nearly a bushel of material, and, judging from the fact that six adult-sized conies and one juvenile were trapped at this pile, it may be that hay-piles are community or at least family affairs.

While not foraging and not occupied beneath the surface of the slide, the cony sits hunched up, usually with its back higher than its head, in some protected place under a large overhanging rock. The post usually selected is the crest of a backward-slanting rock where the animal can enjoy a wide angle of view and yet be in a position, when danger threatens, to dart back into the shelter of the slide. These perches, or observation-posts, are marked by accumulations of droppings of an oblately spherical shape, like those of a rabbit but much smaller, and by whitish stains due to the action of the liquid excrement on the granite. When a cony comes to "attention" on an observation-post the head is often raised, the nose wiggled, and the feet "shuffled," all suggestive of mannerisms of a rabbit; but the movements of the head are much quicker. The hobbling gait reminds one somewhat of the hopping of a brush-rabbit. The cony moves rapidly and with apparent ease almost everywhere in a slide, even over very steep and smooth rock surfaces. We have never seen one of these animals assume the erect posture which is common to rabbits.

The cony shares its rock-slide home with the bushy-tailed wood-rat *(Neotoma cinerea cinerea)* and the Sierra marmot *(Marmota flaviventris sierrae)*, but we have learned nothing to indicate that these two large rodents molest the cony in any way. In the matter of enemies, there are only three carnivorous animals which dwell in the same situations as the cony and which we have reason to believe may prey upon it. These are the Sierra pine-marten *(Martes caurina sierrae)* and the least and mountain weasels *(Mustela muricus* and *Mustela arizonensis)*. At Vogelsang Lake, before sunrise of August 31, 1915, two conies were heard "bleating" vociferously as they ran excitedly here and there among the rocks. Investigation showed the cause of the disturbance to be a least weasel. From the disturbance which these conies made, it was inferred that they had recognized the weasel as an enemy and were doing their best to spread the alarm among their neighbors. It is improbable that birds of prey, hawks and owls, levy much toll, because of the protected situation in which the cony lives; and there are no large snakes to search out and devour the animals, as would be the case if the latter lived at lower altitudes.

Conies seem to be most active during the early morning and evening hours; but they evince more or less activity at all times of the day, and they have been heard "bleating" on moonlight nights. They seem to enjoy coming out and running about or sitting on their observation-posts just as the afternoon shadows have begun to creep over the rock-slides. Sometimes they will sit quietly for considerable periods of time, and the observer must do likewise if he expects to catch sight of them.

As yet information concerning the breeding habits of the Yosemite cony is rather meager. We know that three or four young are produced at a time. The breeding season would seem to be rather extended, as in mid-July, 1915, young two-thirds to three-fourths grown were already abroad, while a number of the females had not yet given birth to their young. The young conies are notably precocious, and, like rabbits, begin to forage independently by the time they are only one-fourth to one-third grown.

To the critical reader the account here given will seem superficial and fragmentary, but it contains all we were able to find out during the few weeks spent by us in the home of the cony. A fascinating field for additional discovery lies at the disposal of those persons more fortunate than we who are able to visit the High Sierra year after year. The Sierra Club member who is not intent merely upon establishing a record in miles of trail covered will find in the painstaking study of the habits of the cony, as also of many another animal of the high mountains, enough to afford enjoyable and productive recreation for many summers.

Berkeley, California, October 10, 1916

THE SACRED MOUNTAIN OF CHINA

By Eunice Tietjens

◆

TO CLIMB Tai Shan, the Most Sacred Mountain of China, is to store up a memory which no succeeding event can blur, nor can any western pride of accomplishment thereafter ever quite banish the oriental certainty that man is as the white breath of oxen in winter, and the little shadow that goeth before the sun. Other mountains, when one has climbed many, tend to grow indistinct in the memory. Their shapes blend and blur confusedly. But Tai Shan, in memory as in reality, is part of no chain of lesser mountains. It stands alone, surrounded by a little cluster of foothills, set down as arbitrarily as a child's toy mountain in the great brown plain of the Middle Kingdom. And in memory it will always seem that heaven is very near its summit.

For Tai Shan is the oldest place of continuous worship in the world. Its beauty is not so much the sheer, breath-taking beauty of nature as the piteous beauty of the eternal hope and aspiration in the soul of man. When we first find Tai Shan, in the dawn of one of the oldest histories of mankind, its origin as a place of worship is already legendary. In the days of Confucius, who lived five hundred years before Christ, men were already telling one another that since the birth of time heaven had been worshiped from the summit of the Most Sacred Mountain, and today thousands of their descendants in flapping coats of dark-green silk climb its rocky gorge each year, their women beside them borne in chairs or toiling in agony on their tiny tortured feet. Religions have come, flourished, and decayed, Buddhism, Confucianism, Taoism, Christianity, but still heaven is worshiped from the cloudy summit of Tai Shan.

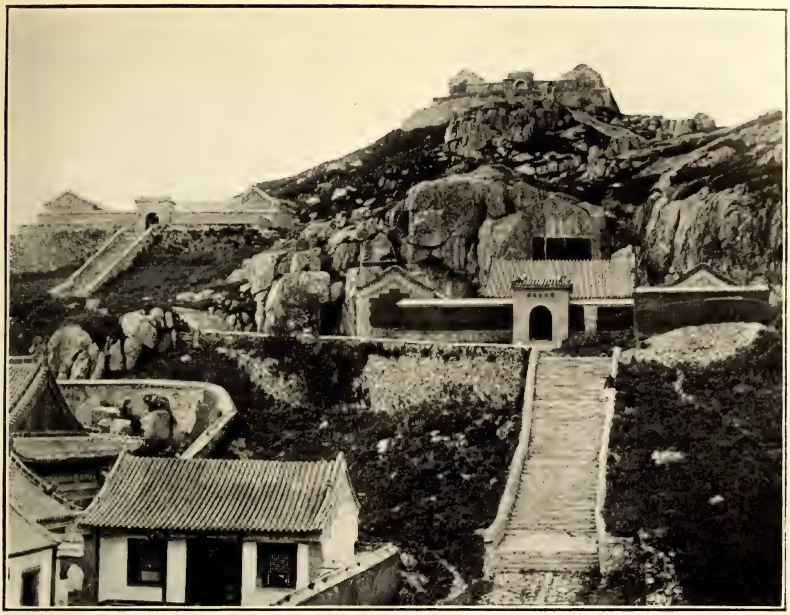
There is something very beautiful and simple about the old Chinese conception which has remained till today in the worship on Tai Shan and in the Altar of Heaven in Peking. "Heaven" is quite impersonal, the great source of all blessing and of all malediction, the beginning and the end. But this pure form is inevitably mixed with local superstitions and vagaries. Tai Shan has a god, of course. His name seems to be simply that of the mountain itself, Tai Shan. He is the rain-god, and, oddly enough to a western mind, the god of the stability of the earth's surface. But his daughter, the Goddess Pi-hsia-yuan-ch'un, Princess of Colored Clouds, is now more important than he. She is a Buddhist deity, the thousand-handed goddess of the dawn, and she has two acolytes, the "Goddess of Family Increase" and the "Goddess of Good Sight." It is to the latter that the Chinese women pray to prevent the dreaded ophthalmic blindness in their children.

The beautiful temple with the golden roofs which crowns the summit—the rock which by nature was the highest point juts up in the center of a small courtyard—is dedicated to this goddess, and it is typical of the mixture of religions in China that, while the temple itself is Buddhist, the priests who serve in it today are Taoist. This temple is a modern affair, hardly two hundred years old, but some sort of an altar has been there for many centuries. The temple is now open only one day in the year, for the spring festival, and on that day the steep steps swarm with thousands of pilgrims of all stations in life. Many emperors have been among them, and the humblest is not forbidden.

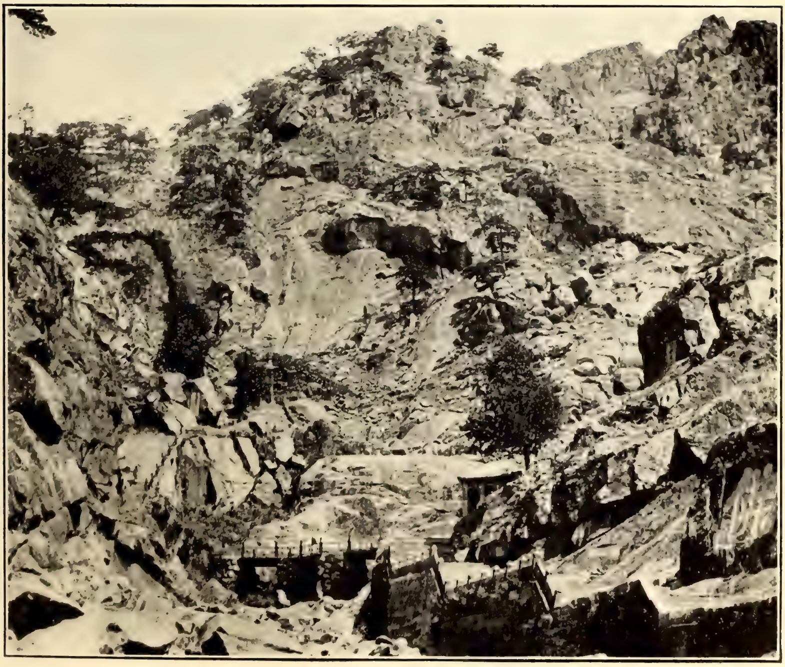
From the standpoint of an experienced mountain-climber the ascent itself is insignificant, the height of the summit above the plain being hardly more than forty-five hundred feet, and the actual height between five and six thousand feet. Information of precision is very hard to find in China, but everyone is agreed that the distance along the trail is forty-two *li,* about fourteen miles.

This trail is really a small highway, about ten feet wide during the entire distance, and decorously paved. The latter part of the way, however, one is glad to walk on it, as it is cut out of the solid rock and climbs otherwise very difficult places. It contains six thousand steps.

The foundation of the rock seems to be blue granite, which predominates largely, broken by ledges of white and pink quartz. But there are many colors among the stones that are built into the steps and line the trail. There are green stones

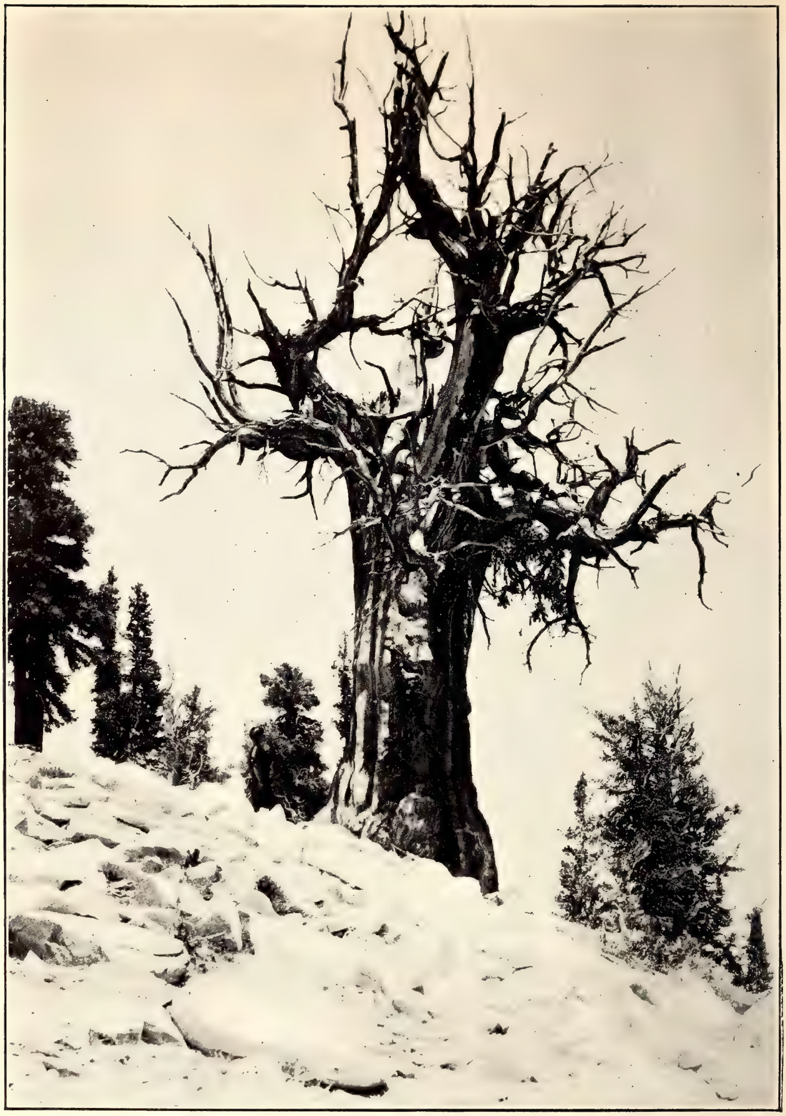


Buddhist Temple on the summit of Tai Shan



Station on the way up Tai Shan

TAI SHAN, THE SACRED MOUNTAIN OF CHINA



A GIANT FOXTAIL PINE ON SLOPE OF RED SPUR
Photo by Walter L. Huber

that look like malachite, bright purple stones, red stones, and brown stones. Many of them seem to be varieties of granite and are very hard, for the steps, which are very old, are hardly worn at all.

The vegetation consists mainly of a few scraggly evergreens and Japanesy pines, although on the lower reaches there are little cultivated patches, only a few feet square, where the beggars who live on the steep slopes raise vegetables and a little grain.

The usual way to go up Tai Shan is to start from Taian Fu, a town of about 30,000 people, and go up in bearer-chairs, little wicker seats swung between two poles and carried on the shoulders of two smiling, grunting, dirty coolies. Each chair has four men, two to carry and two who rest. A coolie receives for such a day's work the whole sum of sixty cents "mex," a little over a quarter.

The peculiar charm of a trip up Tai Shan lies in the combination of the pleasure of climbing for its own sake with the fascination of the Orient. After you have passed the arched gateway that begins the trail you pass an old, half-ruined temple, where you are shown a dried man, infinitely old and withered, ninety-four years old he was when he died, who sits in silk and solemnity in the temple courtyard. All the way along you pass at intervals similar temples, perched in crannies in the rock, where dwell Buddhist nuns with shaved heads, or little teahouses with strange names. "Tiger Lying Hall" was, I remember, the place where we ate our lunch. Part way up you pass a gateway inscribed "Horse Return Precipice," where presumably you part with your steed, though we saw nothing resembling a horse on the way. The temples also have charming names, "First Heaven Gate," "Half Heaven Gate," and, at the top of the steep rocky gorge which the trail follows all the latter part of the way, "South Heaven Gate."

The sides of the gorge are carved at frequent intervals with characters and inscriptions, in commemoration of pilgrimages made by a contemporary of Cleopatra, or a pious emperor of the Middle Ages, or even a wealthy silk merchant of today. "Where there is prayer there is answer," "Piety," and other religious sentiments are everywhere. One inscription reads:

"Confucius took this route." Another, of four characters, means literally, "Good, Emperor, Wind, Flows," and illustrates well the stenographic character of the Chinese language, for it means "A good emperor goes up like wind and flows down like water." This is in commemoration of a successful trip by some long-dead potentate.

Near the top is a precipice over which devotees used to throw themselves in a religious ecstasy to the rocks below. So great was the loss of life that the authorities have guarded the place with a high wall.

The climb itself is very gradual and not at all difficult till you reach the last stretch before the "South Heaven Gate" at the top of the rocky gorge. Here the steps are very high and very narrow, and travelers are wont to rest frequently. And here an amusing incident occurred to me. I had hired a chair in proper style, but I had not ridden in it at all on the way up, to the delight of my coolies, who thought me nothing less than half-witted to walk when I might have swung at ease. At this last stretch they had gone ahead of me and were waiting on the stairs. As I came up they all fell to clapping their hands and giving nasal grunts that sound like "haw" and mean "good." They smiled and flattered till I was forced to laugh, for I knew that, while part of it was surprise that a foreign lady could walk so far, the greater part of it was fear lest at the last minute I should show a white feather and climb into the chair. But I plodded on alone, and they applauded joyously.

After the "South Heaven Gate" the path tops the rocky gorge and turns out over a wide plateau, on which at a little distance stands the temple of the summit.

It is very clean and windy here. Below you on every side stretches the flat brown plain, like the floor of earth. In the foreground are green-flecked foothills and, beside you in this airy space, the sloping gold-tiled temple roofs. A black bird, like a crow, flies and circles over the blue abyss, and another bird calls from somewhere with a song like our bob-white.

Besides the temple, in the infinite spaciousness and peace where the great winds are, stands a broken and crumbling monument. Carved on it are the words, "On this spot once Confucius stood and felt the smallness of the world below." And though the body of Confucius has lain these twenty-five hundred years in Chu Fu, his spirit stands today, eternally, on the summit of Tai Shan and looks out from the footstool of heaven over the smallness of man and his world.

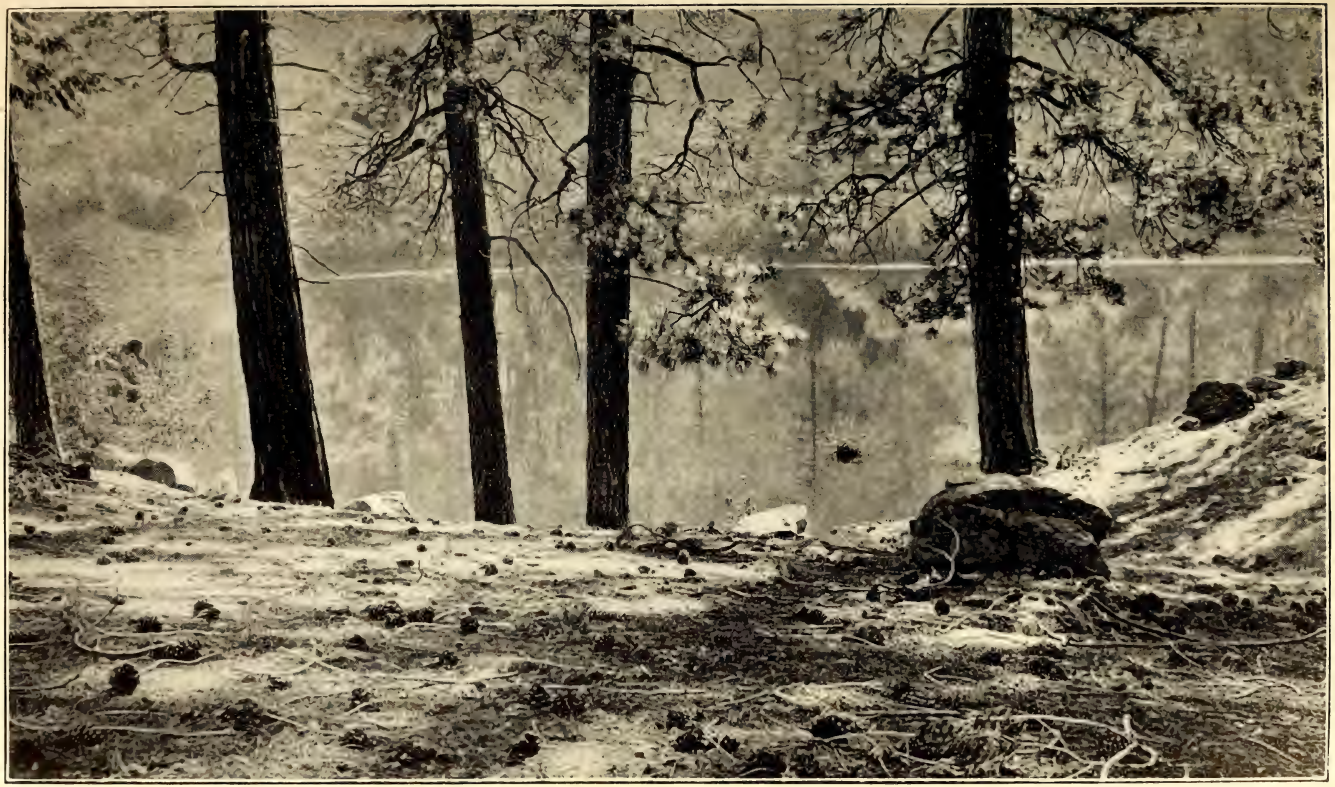
THE KERN RIVER OUTING OF 1916

By Jessie McGilvray Treat

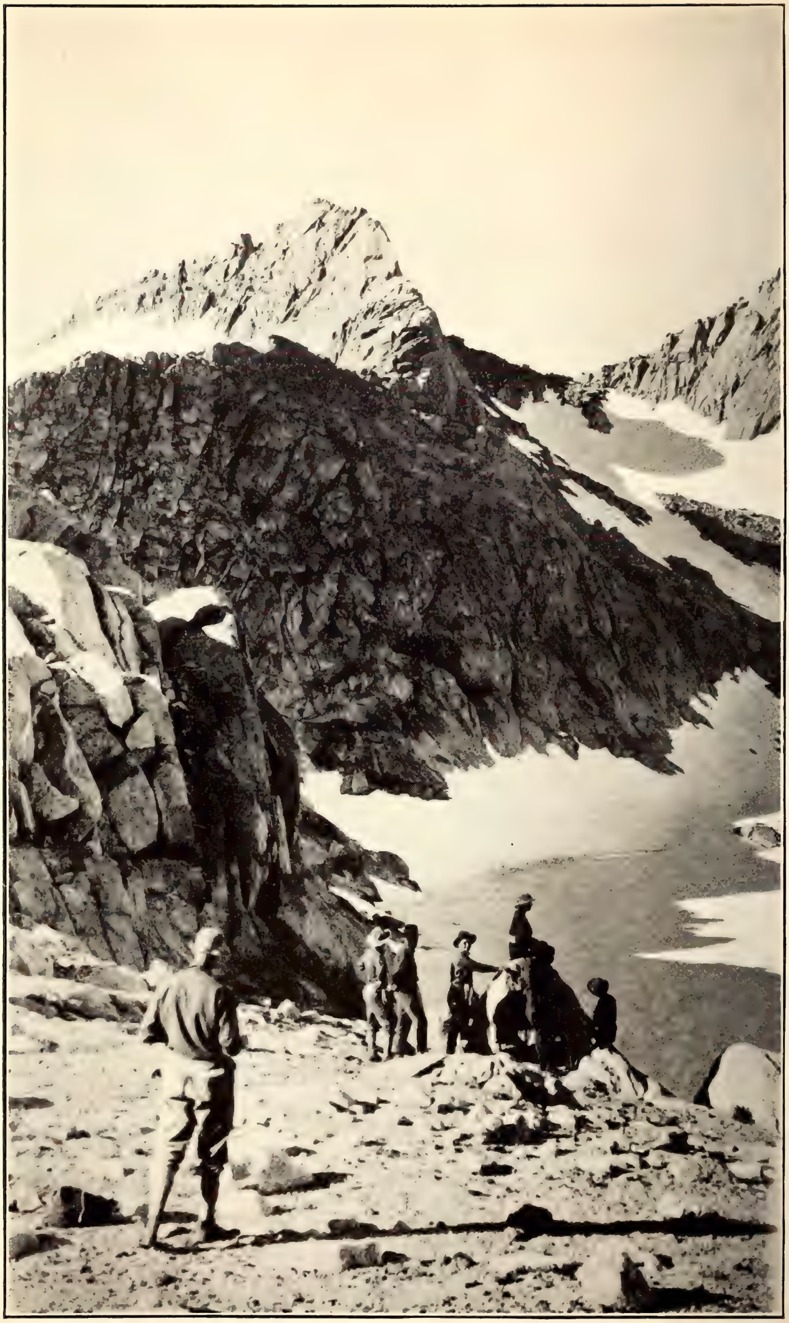
◆

THE weeks and months of anticipation were at an end, for the first of July had come at last, and we were actually started for Kern River Cañon. The Fates had decreed from the first moment that this should be the best outing ever taken by the Sierra Club. High fog, heaven-sent, made the much dreaded tramp through the foothills to Nelson's a delight. Inspired by that incomparable elation that comes when we can live each moment for the sheer joy of it, and measure our days only by our unrestrained pleasure and incessant delight, we swung up the trail, radiant. The path led up a closely covered foothill cañon, wooded with chaparral and occasional fine trees, now and then crossing rushing creeks which later poured into the South Fork of the Tule. An early luncheon close beside the stream, a drowsy half-hour stretched out in the shade listening to the ceaseless chatter of the swirling water, and then, refreshed, we pushed on to Nelson's. At this first camp all the old Sierrans graciously offered advice and assistance to the newcomers and the genial good-fellowship, which prevails throughout the outing, was at once manifest. Toward evening a rift in the fog gave us some idea of the beauty of the surrounding hills, and a rosy sunset glow promised a sunny morrow. This second day will be remembered by all forest-lovers, for our way was through superb sequoia groves on both sides of the Tule-Kern Divide. Fine specimens of sugar pine, yellow pine, and fir added variety. Then we followed down Freeman's Creek to Lloyd's Meadows, where we pitched our camp. Those who fortunately arrived early had the joy of a swim and developed great dexterity in catching the lemons which floated downstream from the soda-spring above, using them for manicure or shampoo, as fancy or necessity dictated.

Out of this meadow we climbed, a thousand feet, to drop down again to the ford of the Little Kern, where we all anticipated much amusement. Some waded across, the swift current



LITTLE KERN LAKE
Photo by Lawrence R. Kessing



A REST ON THE DESCENT OF SAWTOOTH
Photo by James Rennie

and rocky bed of the stream making it an uncertain pleasure; others were ferried across by a most obliging member, who made countless trips with two animals; while on the opposite bank were gathered those who had arrived earlier and were drying out. "Gabriel," our most picturesque donkey, was almost drowned in the stream, and his rescue added a thrill of excitement.

Wednesday a delightful six-mile tramp over the Kernbut brought us to Little Kern Lake, where we were to camp for several days. The real trip had begun; we had at last reached the Kern, our variable companion for several weeks to come. We should know its every mood, and part with it reluctantly. The fishermen here forgot their disappointment that this was the closed season for golden trout in their endeavors to catch the more familiar varieties. Lunch parties with trout cooked in the ashes or on a hot rock or in the less picturesque frying-pan were not infrequent. Excellent swimming in Little Kern Lake made the small sandy beach a gay and busy place every afternoon.

These days of lazy pleasure were soon over, and we journeyed up the cañon past Lower Funston Meadow to the point where the Big Arroyo tumbles down in white cascades to meet the Kern. This trip was a varied eleven miles between the precipitous walls of the cañon. The trail led now across talus slopes, now over grassy, sparkling meadows, then across swift-running torrents. Each day we became more adept at crossing foaming, noisy streams on slippery logs, but the one over Rattlesnake Creek was a wet and undulating sapling—a test of self-control and coordination. The Big Arroyo camp was almost surrounded by two rivers, and the Big Arroyo unkindly rose at such a rapid rate after sundown that a hasty evacuation of some of the most charming camp-sites was necessary.

On Sunday we zigzagged up a very steep slope toward the Chagoopa Plateau, frequently stopping for breath and to enjoy the ever-changing prospect down the Kern Cañon, so colorful with living shadows. Pushing on through a splendid forest, we suddenly came out into Sky-Parlor Meadow, too glorious a spectacle to describe or to forget, a wide-spread amphitheater, carpeted with flower-sprinkled green, encircled by dark pines and crowned by solemn, jagged peaks and glacial cirques, notably Sawtooth, Needham, and the many-hued Kaweah group. Impossible as it seemed to leave this enchanting spot, our next camp, Moraine Lake, was near, and we promised ourselves the joy of coming often during our week's sojourn.

Moraine Lake is an ideal camp-site. Dense forest fringes the margin of this glacial basin. A clear, bubbling spring, icy cold, supplied delicious drinking-water, and, despite snow-hung mountains mirrored in the lake and the almost 10,000 feet of altitude, swimming was more than possible—it was enjoyable. This idyllic spot is centrally located for countless trips varying in degrees of strenuousness to suit any inclination.

> Then follow you, wherever hie
> The traveling mountains of the sky.
> Or let the streams in civil mode
> Direct your choice upon a road.

An evening walk to the edge of the ridge gave one a glorious comprehensive panorama from Mount Whitney, in the main crest beyond the Kaweahs, along a sharply broken sky-line of granite peaks in the Great Western Divide, to the unnamed snow-clad cirques just across the gorge. From the almost perpendicular walls of the Big Arroyo one seemed to be perched on the top of the world. A faint boom from the river far below throbbed in the evening stillness. As the long purple shadows filled this magnificent valley we hastened back to our forest-hidden camp, elusive even by day.

Here were six days brimful of pleasure. One hundred and forty intrepid ones climbed Kaweah Peak; knapsack parties journeyed off in all directions, some to Lost Cañon, Columbine Lake, and Sawtooth, some to Mount Needham; and toward the end of the week ardent hikers with bed and board on their backs journeyed up the Big Arroyo and across the Kern-Kaweah Divide, descending through the wonderful Kern-Kaweah Cañon to join the main party again at Junction Meadows. For those not so energetic there was still much to be done—fishing parties down at the Big Arroyo, dreamy days at Sky-Parlor Meadow, and swimming and fishing in Moraine Lake. History has it that once upon a time a mighty 8½-pound trout was caught there; but although many saw three gigantic beauties, neither secret sorcery, hypnotism, nor fancy flies could lure them to impale themselves on any deadly hook.

As each day was more wonderful, so each night the spell of the camp-fire drew us closer into the magic circle. "Lost and found" were distributed with appropriate remarks, the trips described in terms of Colby or Tappaan miles; and then came a wide diversity of entertainment—interesting talks on birds, trees, glaciers, Alaska; singing of solos or *tout ensemble;* haunting melodies of flute and violin, peculiarly suited to these surroundings.

The annual Sierra Club Vaudeville given here in the forest theater was a high-class performance which brought out much talent—"Street Scenes in Venice," beautifully staged, was interrupted somewhat by temperamental "Gabriel"; music, skits, monologues, and even Shakespeare *à la mode,* were greeted with generous applause. Another day the bulletin-board announced that a bandana exhibition would take place, and all were urged to enter gaudy squares in this unique competition. Things of beauty were produced from grimy dunnage-bags—hand-woven brocades, block-printed silks, and oriental scarfs of much interest. The last evening found the commissary metamorphosed and we dined sumptuously and well at "Café Moraine," served by familiar faces rising above unfamiliar garments. The men had raided the women's camp and now appeared in flowered kimono, highland kilt, or prim shirt-waist.

A wealth of stirring memories is associated with this camp—the mysteriously fascinating eclipse of the moon, a "by request" violin concert on the sloping hillside near the spring, a vivid electrical storm over the upper Kern region—so it was with genuine regret that we left the Chagoopa Plateau to return to our former camp-site in Lower Funston Meadow for one night and then push on eleven miles to Junction Meadows.

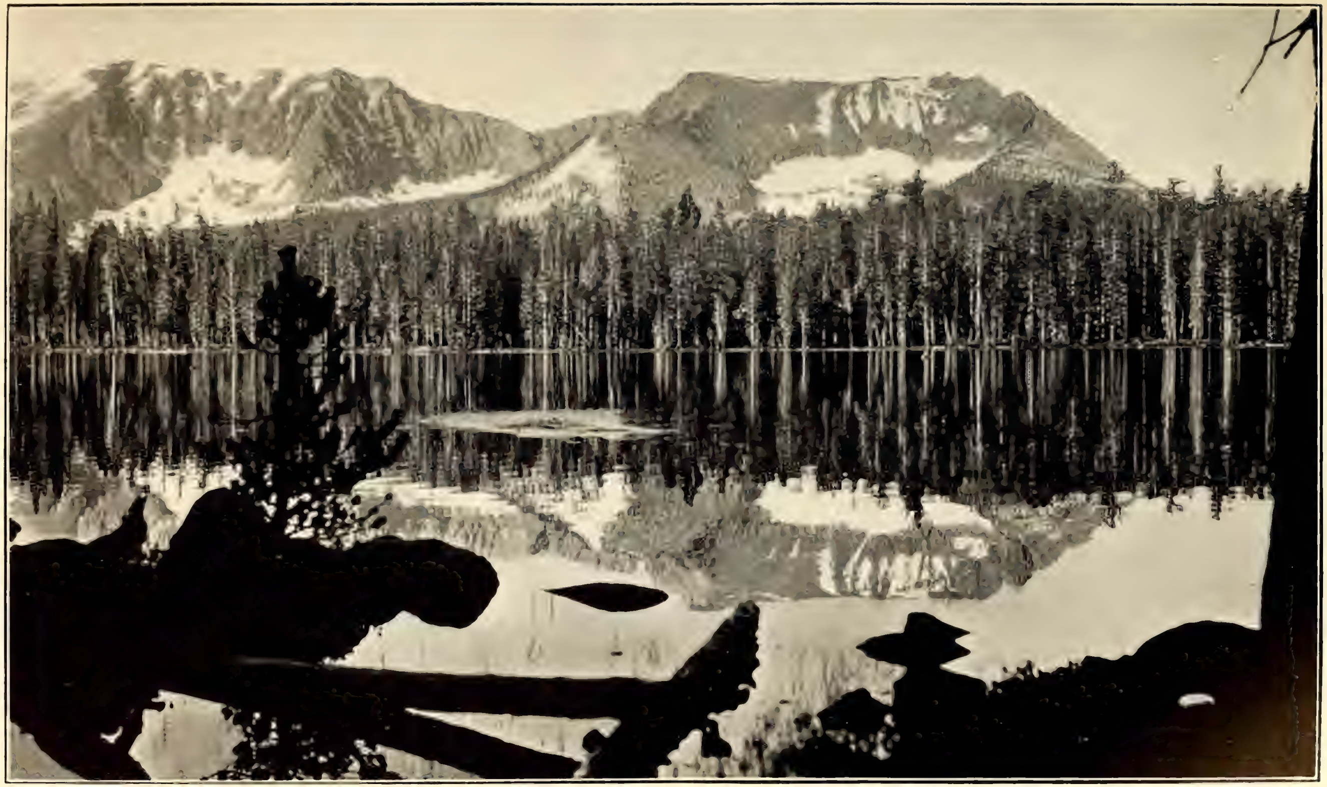
This day we crossed the mighty Kern itself and proceeded to the upper end of the cañon, whose grandeur was enhanced by mighty sculptured walls and forbidding cliffs, culminating in minarets and domes, rushing streams, pouring at intervals from some side cañon, and occasional mistlike waterfalls, "like downward smoke, slow-dropping veils of thinnest lawn." Junction Meadows, where the Kern, Kern-Kaweah, and East Fork meet, had been ravaged by a terrible tornado since the club camped there in 1912 and splendid trees were everywhere lying prone. The knapsackers returned, thrilled by the rare beauty of the upper Kern-Kaweah, and, animated by their glowing description, many decided to explore for themselves. It seemed as if some whim of creative force had hidden in this remote cañon at least one perfect form of every kind of mountain scenery, as a reward for those who persevere.

On Wednesday morning two hundred left for the Crabtree Meadows base camp to ascend Mount Whitney the following day. One hundred and seventy-five reached the summit, the largest party of mountaineers ever registered there. Those of us who remained below anxiously watched the angry clouds pile up in the direction of Mount Whitney on Thursday. A dark sky threatened rain, but only a few scattered drops fell at noon; the clouds soon dispersed, and these spatters were the only shower of the trip.

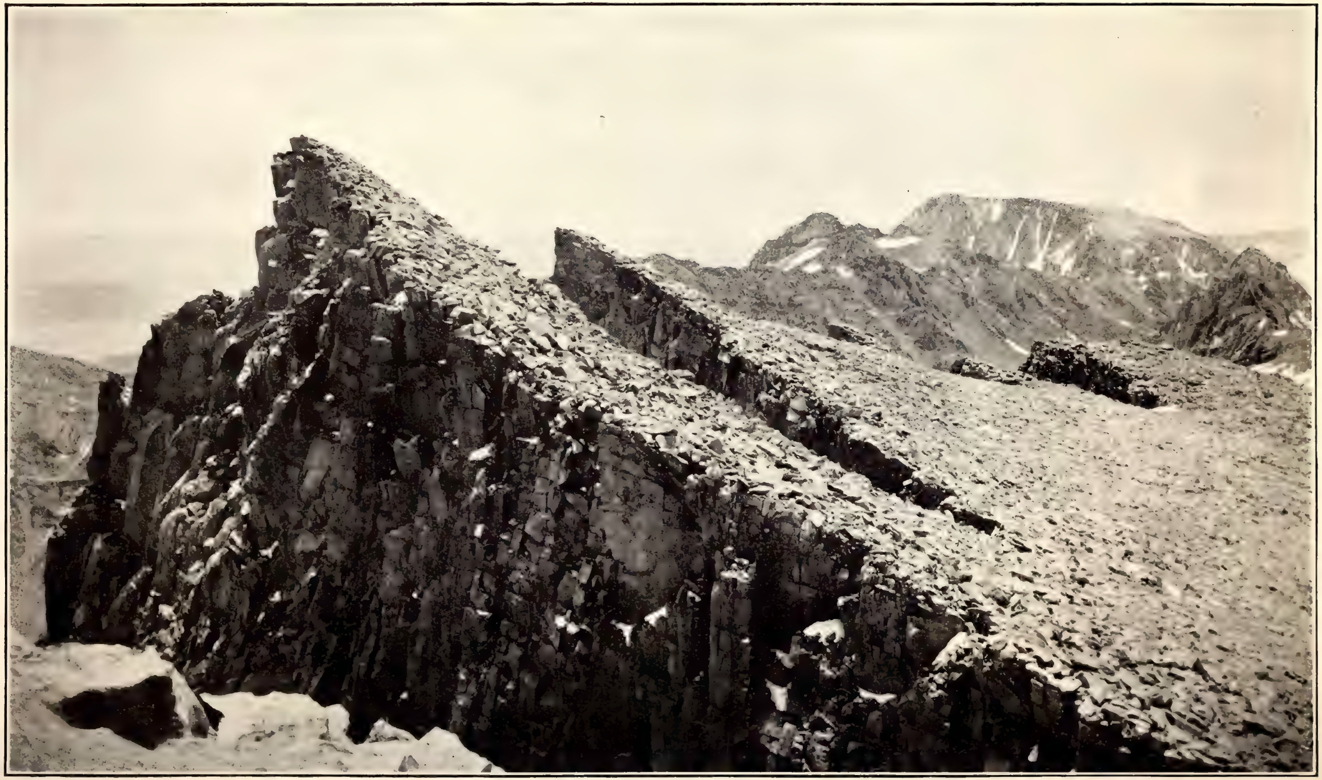
A long, steep pull out of Junction Meadows to the ridge, although exhilarating, brought with it a certain sorrow that here we must part with our many-mooded companion, the Kern. We consoled ourselves with the ever-changing panorama as we struggled on and up toward the crest. A glorious prospect was here presented. Peaks of the High Sierra, especially Mount Whitney, seemed broad, gently sloping masses, while Red Spur and the Kaweahs, now seen from the north, looked unapproachable and awe-inspiring. The Whitney climbers straggled across the upland meadows, each group content at times to nestle down among protecting rocks and scan the marvelous beauty radiating on all sides.

A desultory content had entered into the souls of most of us, with Mount Whitney, the highest peak in the United States, conquered; but at the Tyndall Creek camp those insatiable ones who must explore found Mount Tyndall and Mount Williamson challenging them to their best efforts. In the evening at the camp-fire all of us scrambled up Williamson's chimney, blistered our hands on the hot rocks, and pulled ourselves through the small "window" to the apex—vicariously.

Off early in the gray of Sunday morning, the crisp coldness of the air most stimulating, we were conscious that *this* day was



MORAINE LAKE
Photo by Walter L. Huber



THE CREST OF THE SIERRA, LOOKING SOUTH FROM MOUNT WHITNEY
Keeler Needles in foreground
Photo by Walter L. Huber

to bring the climax of the outing. Swinging up a gradual rise toward Shepard's Pass, we paused often to admire the wild majestic beauty of the Great Western Divide—Table Mountain, with its mesa-like summit, Thunder Mountain, dark and sulky, then farther southward that unique shaft of granite, Milestone. Suddenly, rounding a rocky crag, we were almost overwhelmed by the glorious spectacle before us—dazzling snow-fields with the trail descending in zigzags across their gleaming surface on toward a retreating cañon whose walls were hung with purple shadows. Farther down this rugged gorge opened out into Owens Valley, a shimmering desert, whose farther margin merged into the foothills of the Inyo Mountains, broken and undulating. Slowly we clambered down this slippery way to a pyramid of rocks which bore this significant message, written on a slip of paper: "Sierra Club, turn here and work toward the plateau covered with trees." Now the route became rock-work. Scrambling and jumping from boulder to boulder, we eventually reached the storm-beaten stunted pines cowering on the upper edge of the timber-line. Here we found ourselves on the recently completed portion of the John Muir Trail, one of the most worthy results of the Sierra Club's concerted efforts. At such an easy grade is the trail built that the ascent to the highest point, Junction Pass (13,200 feet), was surprisingly comfortable. This route from the Kern River basin over Shepard's and Junction passes into the Kings River watershed is through one of the most impressive and utterly wild regions of the High Sierra.

At the summit of the pass, where all were to await information concerning the safety of the pack-train before advancing farther, we snuggled down among wind-breaking rocks and with the satisfaction that comes after such a climb serenely enjoyed the elemental wonder of it all. Spread before us in splendid diversity were alpine lakes, sparkling streams, glacial slopes, somber cañons, precipitous crags, grassy meadows, wind-swept forests, and silent peaks. On the left Mount Stanford loomed boldly, while to the right was a sharply serrated ridge culminating at intervals in peaks—Mount Keith, a few hundred feet higher than the pass, Mount Bradley, and finally University Peak. Above timber-line one is submitted to direct actinic rays and kindly shade is hard to find. But out of the sun the wind was too cold, and the consumption of much variously flavored snow had made exercise desirable. When word came that the pack-train had crossed the first snow-fields and we could proceed to Vidette Meadows at our pleasure, small groups at once began to descend over a flinty trail toward the lovely lakes in Center Basin.

Encircling Center Peak, now towering high above us, we came upon an unnamed glacial lake, colorful and perfect. Mirrored in its waters were bluest sky, fleecy clouds, and snowy peak; its edges were beds of mossy green, flower-scattered. With East Vidette to beckon us, we pushed down toward our next camping-place, but each time we stopped to take our bearings that deceptive landmark seemed just as far away. In the late afternoon we arrived at the junction of Vidette and Bubbs creeks. A long and varied day was drawing to a close. Seventeen of the most wonderful miles ever traveled had been accomplished, and reluctantly we felt darkness creep upon us, as "by punctual eve the stars were lit."

But this Vidette camp at night was one of rarest beauty—here there was the silence of the High Sierra meadows uninterrupted save by an undertone from the smoothly flowing stream, "the floor of heaven . . . thick inlaid with patines of bright gold," and outlined against this glittering curtain towered that majestic pyramid, East Vidette.

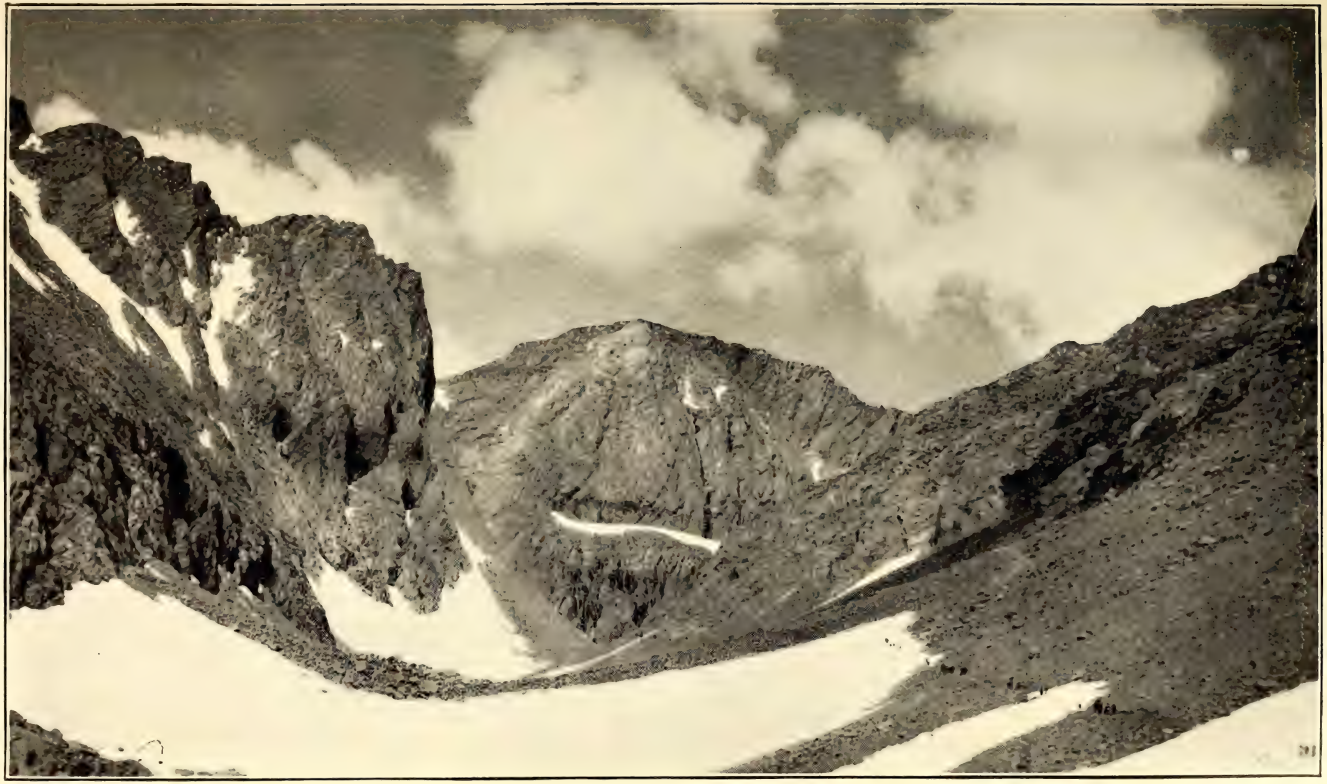
From this location knapsack parties went to Mount Brewer or Rae Lake. The main camp became a scene of bustling activity; the weighing of food and stowing it in small bags; the sorting and packing and resorting of the "thirty-five pounds"; the trying-on of "packs" of food and bed, and attempting to persuade oneself that this unwieldy excrescence is a bundle of joy—all these occupations were everywhere in evidence. The much-heralded beauty of Rae Lake accounted for this restless uncertainty among us, and even the avowedly indolent were strongly tempted to try this one knapsack trip. Rumors of the difficulty of the trip varied widely. Some admitted Glenn Pass to be a stubborn climb through talus and heavy snow, while others promised a comfortable yet thrilling trip, possible to anyone who had survived so far. Fully fifty finally went, and all of them confided to the "stay-at-homes" later that it had been worth the effort.

Good fishing in Bubbs Creek, East Creek, and Lake Charlotte; the opportunity to explore the upper reaches of Vidette Creek, with its well-concealed lakes; the walk down Bubbs Creek to the falls, or farther to the wooded ravine from which East Creek pours forth and where a fine view of Mount Brewer was to be had—these jaunts were compensation for the intimidated.

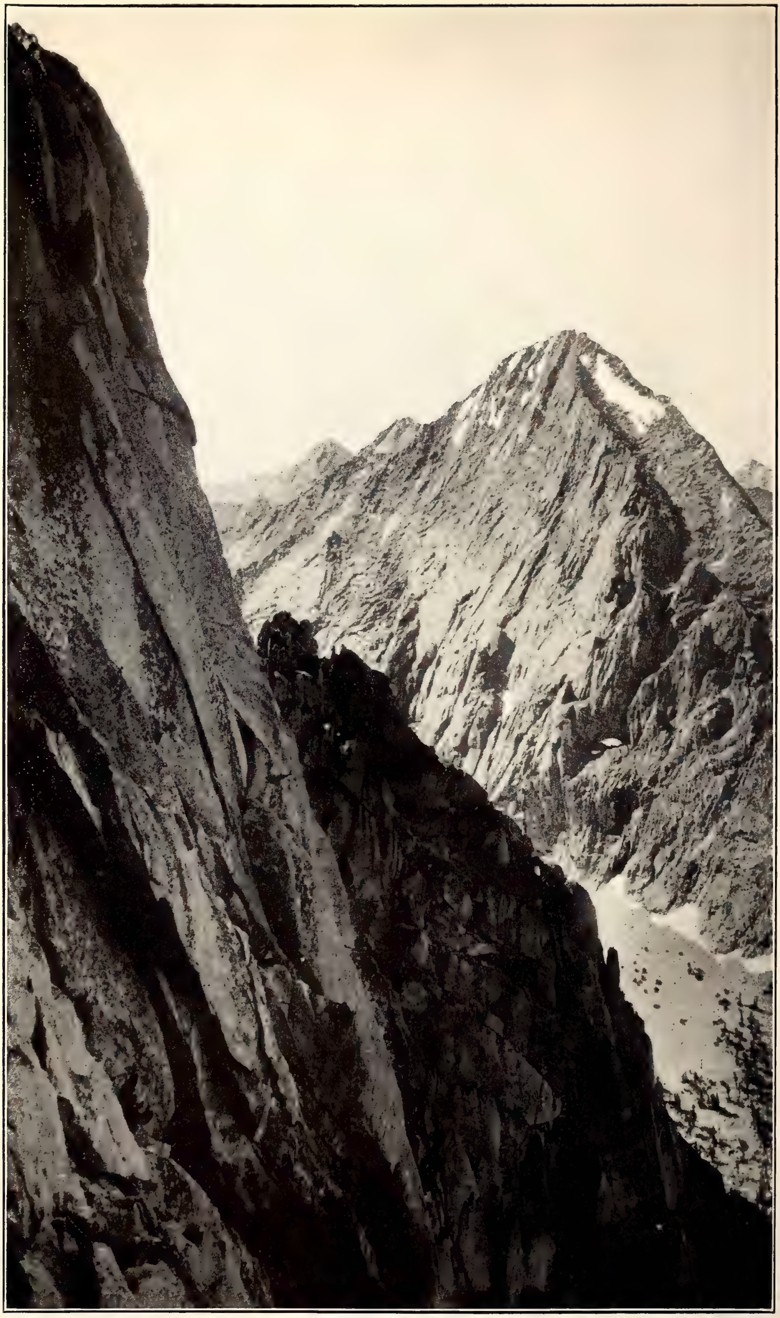
Thursday we moved camp a short distance to Sunset Lake, one of the chain of sparkling sapphire pools which lie at the base of Kearsarge Pinnacles. Many were off early to visit Lake Charlotte on the way, a delightful place to spend the day, with good fishing, and for those who went merely to "fry them in the pan" there was the additional interest of greeting the knapsack parties from Rae Lake and being the first appreciative audience. Reluctant we were to leave this heavenly spot, for tomorrow afternoon would find us in Independence, back among watermelons and white folks.

The last night in the mountains our commissary was established on a narrow neck of land between two lakes, and long before summons to dinner sounded there was "standing room only." After each knapsack trip, despite the glowing tales of scorched rice and superabundance of fish, the returned adventurers are always conspicuously first to dinner, and with heaping plate and brimming cup immediately go to the end of the line, in order to waste no time between first and second helpings. The evening air here was rather chill, and as the sunset glow faded from the tips of the Pinnacles all of us showed a decided preference for the camp-fire. It was a fitting climax to these characteristic gatherings that we should hear a chapter from John Muir's Florida diary, as yet unpublished. Little did we realize that on the morrow some of us would follow his example and find a comfortable camping-place in a cemetery. Then we sang "High, high, high," and hied ourselves to our sleeping-bags. Throughout the women's camp the fires sprang to life, reminding one of the old illustrations of Dante's masterpiece, each ledge with its flame dancing and changing and throwing mysterious shadow-figures. How grateful were these glowing embers when at 4:30 the rising call sounded and we found ice in our water-buckets for the first time on the trip! With numb fingers we tied our dunnage-bags and rolled them down-hill for the last weigh-in.

Although we were early on the trail to Kearsarge Pass, silhouettes of earlier climbers were already outlined against the sky. From this famous pass another comprehensive panorama made us loath to be en route. The desert lay in misty haze. Directly below us was Pothole Lake, still frozen over; behind us, whence we came, was a marvelous wonderland of faintly flushed peaks, hung with snow and partly hidden alpine lakes. The discomforting assurance of an 8000-foot drop in our fifteen-mile tramp, and half of this distance across sand and sage, forced us to proceed downward. Passing by Pothole and Heart lakes, we came into Onion Valley, whose name belies it, for it was more truly a natural hanging garden where all mountain flowers bloomed in profusion. Especially fine was the delphinium, or giant larkspur. Following Pine Creek, we finally came to Independence, which eluded us as long as possible, and our weariness was forgotten in the reviving effect of fresh fruits and ice-cream. Our invasion on all food supplies will doubtless be remembered, and we hope the "preparedness" of the Ladies' Aid Society was amply rewarded. A day and a night on the train and on a Sunday morning we were back again among the worries and conveniences of every-day life. This month in the mountains is a singularly rich experience which "strengthens one's appreciation of the beautiful world out-of-doors and puts one in tune with the Infinite."



ON THE JOHN MUIR TRAIL
Approaching Junction Pass from Shepard Creek
Photo by Walter Mulford



EAST VIDETTE, FROM THE FACE OF KEARSARGE PINNACLES
Photo by James Rennie

VIA DEER CREEK

By C. Nelson Hackett

❦

NEITHER with fir nor cedar, with tamarack nor juniper does my story begin. No native branch do I lift up that ever the Sierra knew. I extol instead the *Citrus aurantium,* whose golden fruit made pleasant all our journey from the Big Arroyo to Bearpaw Meadow, though partaken of but once, and it divided. How sweet were the influences shed by that inceptive orange you of the cult will readily believe when I relate to you the facts.

We were seated in a saddle of the Great Western Divide, the headwaters of the Big Arroyo on one side and the source of Deer Creek on the other. Below us in one of the last clumps of trees we had lighted our camp-fire the night before, and there we had slept in its smoke through the chill night and had eaten thirst-provoking porridge and bacon that morning. Ray Bailey's party, with which we had come from Moraine Lake, around the base of the Kaweahs and down into the glorious Arroyo the previous day, was just disappearing on its way to the Kern-Kaweah Cañon. At that moment Walter Huber, my sole companion, loosed his pack and produced therefrom, with all the dramatic surprise of an ex-silk-hat-enter-Mr. Rabbit, a marvelous orange. Since that moment its donor has been to me a canonized saint. The aureole is round his blessed pate and the symbolic citrus in his hand shows still in memory huge as the blue-ribboned ones in the convex jars at a county fair.

The sun was at our backs as we began a descent which was to lower us with neither instancy nor ease from a height of 10,600 to 7000 feet. In the beginning it was almost all snow, and all that was not snow was talus. There was a tiny pond, all frozen, where Deer Creek begins, and then a larger lakelet, with winter's seal upon it, too, though cracked and broken. With every step the cañon widened, the bare cliffs lifted their brows more awesomely. Suddenly we stepped out onto the brink of the bottomless pit. Black and wet and sheer are the cliffs by which mere man must clamber down sixteen hundred feet to the third lake of Deer Creek. This is the chief difficulty between the Kern and the Giant Forest, and the trail-builder will have his task.

My pack was small, but I felt as if I were trying to carry a wardrobe trunk down a winding stair without damaging the plaster. For some time one of us had been going ahead and receiving the two packs which the other handed down to him, when it occurred to me that it would be feasible to let my pack slide ahead of me for ten or fifteen feet. A wild mountain sheep could not have sprung from my grasp with a more lifelike leap —one bound to leave the ledge, another to clear the cliff, and out it spun into the blue, and then down, down. . . . At the base of the cliffs a little stream ran out between high banks of snow. There, on a rock in the midst, like a wet cormorant sunning, I found my much-cursed pack an hour later.

Gerhart Hauptmann, speaking of mysteries in secret societies, says, "Even children possessing a secret in common swell with a sense of importance." To overcome this childish feeling is difficult in remembering the lake we now approached, which is one of nature's most precious revelations to what can be the merest handful of men. The arcana of all societies, from ancient Eleusis to a modern Skull and Crossbones, seem paltry by comparison. With a great apostle, I can say, "Behold, I show you a mystery." Down five hundred feet and more, over cliffs which make dawn late, half a dozen cascades shake their silver ribbons. Groups of stately pines stand on the margin of the lake. From its northern edge rise granite cliffs of marvelous sculpturing. At its northwest end its green and blue waters flow out in a slow and limpid stream through a magnificent forest. Every puddle in Italy, every pond in New England—even the waterless hollows of the moon—have their names, but this glorious lake lies flashing in the summer sun, unnamed, almost unknown.

From this lake (Lake San Graal I think I shall call it until a more authoritative christening) there is no royal highway down Deer Creek. We tried the cliffs to the right, failed, moved a short distance through brake-fern higher than our heads, then through a wildwood tangle, crossed the creek on a log where the final "r" of "Deer" is on the Government map, tried the cliffs of the south side, and then finally made for a place down-stream some three-quarters of a mile, where the creek again ran into a forest and gave promise that the jungle there would cease. In the meantime it was a hand-to-branch encounter. Underfoot was tippy talus concealed largely by vines. Manzanita did the low tackling, while elder and deer-brush slashed at our faces in front or at our packs from behind. Nor did the sun forget to concentrate his rays on our perspiring foreheads.

Our destination was Bearpaw Meadow, where we expected to meet two fellow-Sierrans who were coming in from the Giant Forest to join the main party. We might now have followed on down the cañon to Wet Meadow and climbed up to Bearpaw by trail. Preferring, however, to keep grade, we followed up the right bank of the Kaweah River. From Lone Pine Meadow down to its confluence with Deer Creek this branch of the Kaweah is almost one long cascade. We spent the afternoon climbing up ledges or burrowing through brush without finding a place at which the stream could be forded. But when we surmounted the eight-thousand-foot contour we came out into a wide swale and there gingerly crossed the river on a snow bridge just below the point where it bends to the east. At once we hit the trail from Lone Pine to Bearpaw. Kipling speaks of "the trail that is always new," but in a sense the trail is also always old. That late afternoon, certainly, after our contest with the wilderness, the trail seemed something ancient and familiar and full of comfort. We were glad to set our feet in the way that other human feet had trod.

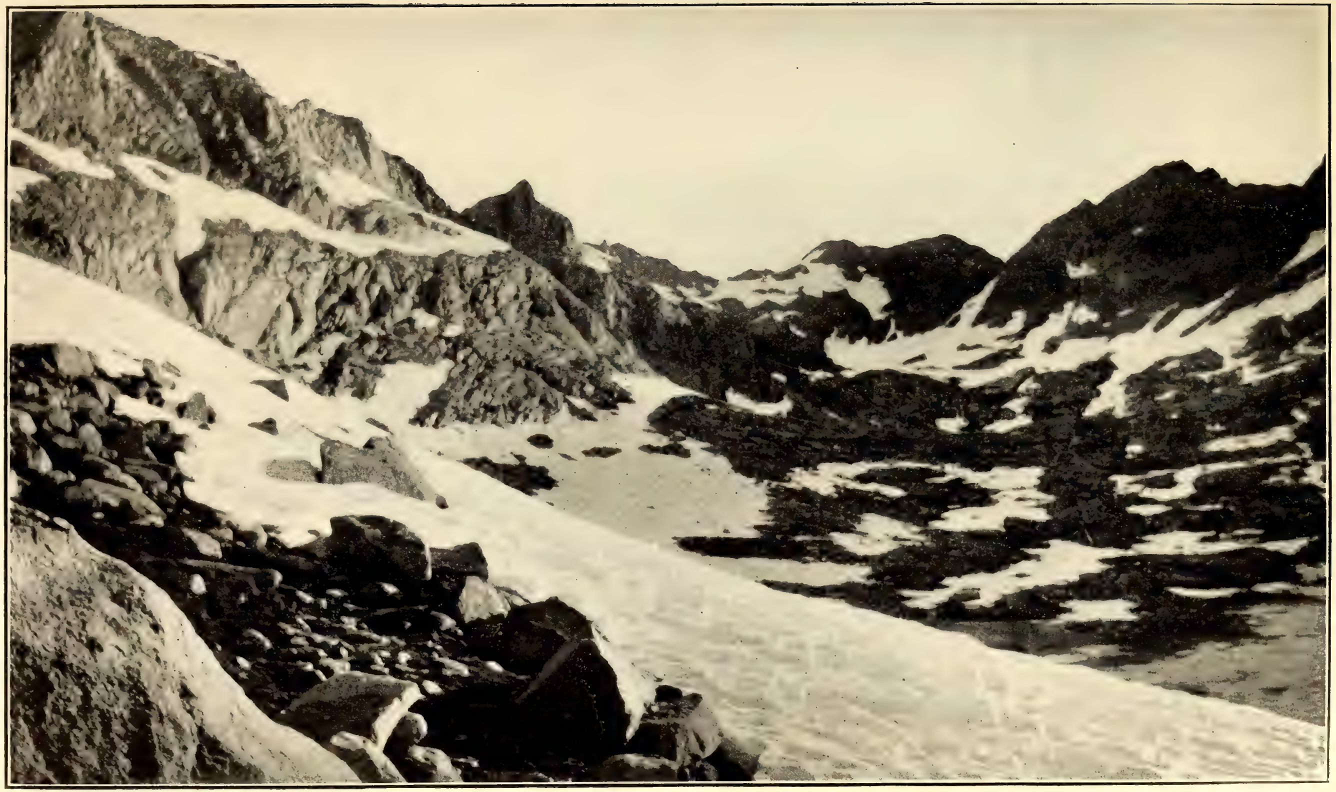
Like the hanging gardens of Babylon is Bearpaw Meadow—a part of the slope of the mountain, 1500 to 2000 feet above the Kaweah River. Its long grassy slope, filled with aspens and wild flowers, is watered by little streams that flow across it down the mountainside. Our expected friends did not meet us, and we broke our hardtack in disappointment.

I remember no more glorious pageant than we witnessed from Bearpaw that evening. Down Kaweah Cañon and far on to the west we saw the hot San Joaquin Valley, covered with a dark haze, the sunset sky above it splendid with a tarnished but royal crimson, "the excess of glory obscured," like Satan new-fallen from Paradise. To the eastward rose the ridges of the Great Western Divide over which we had come. A silvery mist veiled their bases and caused the snowy peaks above to tower with sublimated loftiness.

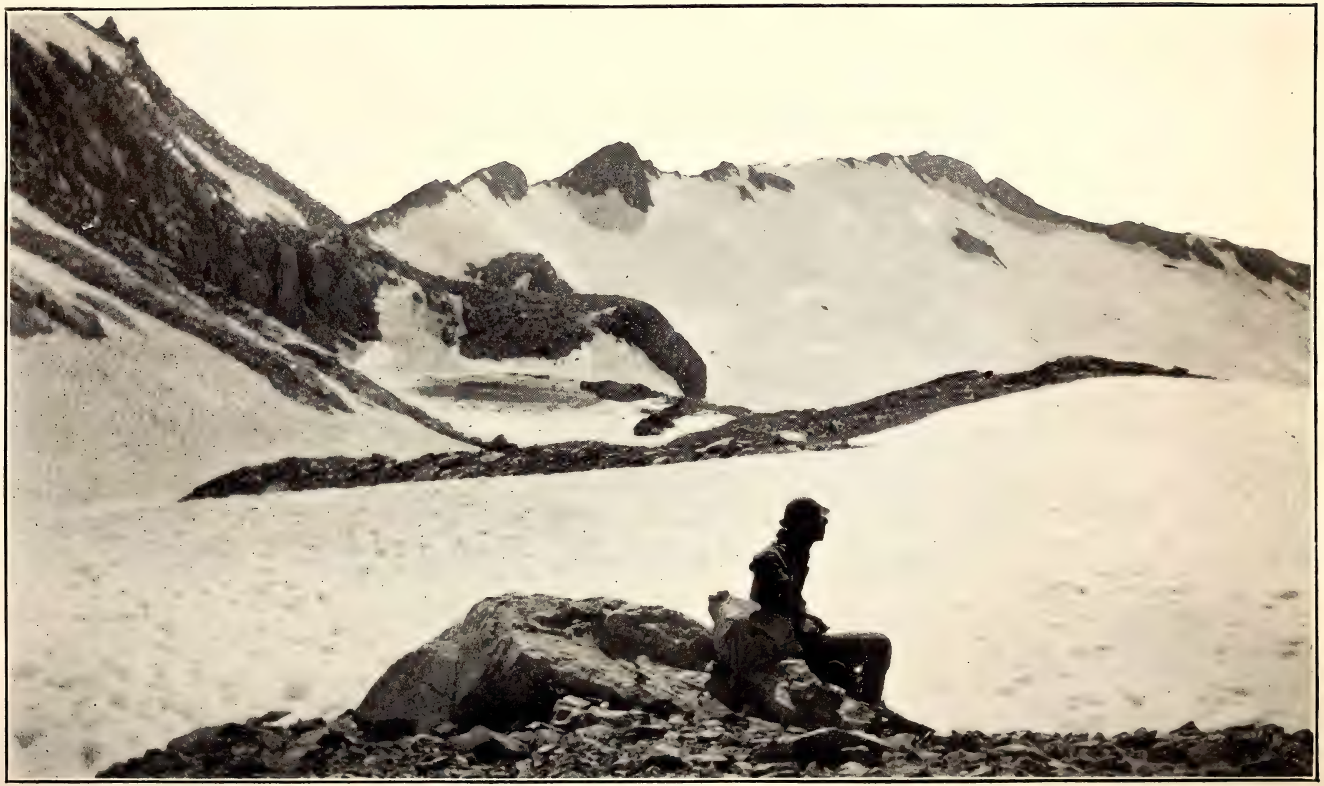
The warmer days and richer soil of the western side of the range have had a magnifying effect on the flora. Coming back to Lone Pine the next morning, we noted the huge trees of that great overripe forest and, wherever there was a soggy green, the blossoms of the shooting-stars, or cyclamens.

Our object in recrossing the Great Western Divide was Junction Meadows. We did not therefore attempt to return by way of Deer Creek, but chose Triple Divide and the Kern-Kaweah Cañon instead. The waterfall that brings down a tributary to Lone Pine Creek, and the splendid cascade a little farther up on Lone Pine itself, should be starred. We passed Tamarack Lake on the north. A steep climb and we came into a great open theater filled with acres of snow and surrounded by seemingly impregnable walls. Due east across it we went and up over the black cliffs, which on near approach showed considerable plant life. We kept near the little stream that comes down from Lion Lake. Long ridges of granite boulders, arranged like Prussian trenches, so that each seemed to be, but was not, the last, had to be crossed before we reached Lion Lake with its subterranean outlet. High above it we kept, crossed a 12,000-foot pass, swung around a shoulder of loose cinderlike shale, and came upon Glacier Lake at the head of Cloudy Cañon. We kept on eastward and upward, over a long hummock-filled snow-field, and exulted at last to stand on the pass beside Triple Divide Peak. We were now above the Kern-Kaweah, and the rest seemed certain and easy. But still there remained snow and rocks, and rocks and snow. Finally, getting down to the river proved a problem, and only after considerable time lost in vain attempts did we find a ledge and a talus-pile that took us to the bottom. As we floundered down the Kern-Kaweah through the snow and icy slush, our appreciation of its glories was a little dimmed by weariness.

We camped that night within a couple of miles of the main party, darkness having shut down on us. We cooked no supper. We unrolled our beds in the very trail. A fire at our feet was



NINE-LAKE BASIN, AT THE HEAD OF BIG ARROYO
Photo by Walter L. Huber



HEAD OF ROARING RIVER CAÑON
Photo by Walter L. Huber

all our labor. So much snow and rock work and the difficulty of two passes over 12,000 feet each had caused a weariness that induced sleep instantly.

Now, although the downy couch of the city had supplanted the rocky cradle of the wilderness, the poppy-crowned goddess approaches with a greater deliberation. In that interval there sometimes flashes on my mind something seen on that trip to Bearpaw, and especially on Deer Creek. And if I dream, it is not of a great highway from New York to San Francisco, wonderful as that would be, but of a mere trail instead. It runs by way of Deer Creek, and its pilgrims saunter upward from the solemnity of the Giant Forest to the grandeur of the Big Arroyo.

STUDIES IN THE SIERRA*

BY JOHN MUIR

◆

NO. III. ANCIENT GLACIERS AND THEIR PATHWAYS

THOUGH the gigantic glaciers of the Sierra are dead, their history is indelibly recorded in characters of rock, mountain, cañon, and forest; and, although other hieroglyphics are being incessantly engraved over these, "line upon line," the glacial characters are so enormously emphasized that they rise free and unconfused in sublime relief, through every after inscription, whether of the torrent, the avalanche, or the restless heaving atmosphere.

In order to give the reader definite conceptions of the magnitude and aspect of these ancient ice-rivers, I will briefly outline those which were most concerned in the formation of Yosemite Valley and its cañon branches. We have seen (in the previous paper)† that Yosemite received the simultaneous thrust of the Yosemite Creek, Hoffmann, Tenaya, South Lyell, and Illilouette glaciers. These welded themselves together into one huge trunk, which swept down through the valley, receiving small affluents in its course from Pohono, Sentinel, and Indian cañons, and those on both sides of El Capitan Rock. At this period most of the upper portions of the walls of the valley were bare; but during its earliest history, the wide mouths of these several glaciers formed an almost uninterrupted covering of ice. All the ancient glaciers of the Sierra fluctuated in depth and width, and in degree of individuality, down to the latest glacial days. It must, therefore, be distinctly borne in mind that the following sketches of these upper Merced glaciers relate only to their separate condition, and to that phase of their separate condition which they presented toward the close of the period when Yosemite and its branches were works nearly accomplished.

---

* Reprinted from the *Overland Monthly* of July, 1874. This is the third of a series of seven studies in which Mr. Muir developed his theories of the geology of the Sierra.—*Editor.*

† Reprinted in SIERRA CLUB BULLETIN, Vol. X, No. 1, January, 1916.

YOSEMITE CREEK GLACIER

The broad, many-fountained glacier to which the basin of Yosemite Creek belonged, was about fourteen miles in length by four in width, and in many places was not less than a thousand feet in depth. Its principal tributaries issued from lofty amphitheatres laid well back among the northern spurs of the Hoffmann range. These at first pursued a westerly course; then, uniting with each other and absorbing a series of small affluents from the Tuolumne divide, the trunk thus formed swept round to the south in a magnificent curve, and poured its ice into Yosemite in cascades two miles wide. This broad glacier formed a kind of wrinkled ice-cloud. As it grew older, it became more regular and riverlike; encircling peaks overshadowed its upper fountains, rock islets rose at intervals among its shallowing currents, and its bright sculptured banks, nowhere overflowed, extended in massive simplicity all the way to its mouth. As the ice-winter drew near a close, the main trunk, becoming torpid, at length wholly disappeared in the sun, and a waiting multitude of plants and animals entered the new valley to inhabit the mansions prepared for them. In the meantime the chief tributaries, creeping slowly back into the shelter of their fountain shadows, continued to live and work independently, spreading moraine soil for gardens, scooping basins for lakelets, and leisurely completing the sculpture of their fountains. These also have at last vanished, and the whole basin is now full of light. Forests flourish luxuriantly over all its broad moraines, lakes and meadows nestle among its domes, and a thousand flowery gardens are outspread along its streams.

HOFFMANN GLACIER

The short, swift-flowing Hoffmann Glacier offered a striking contrast to the Yosemite Creek, in the energy and directness of its movements, and the general tone and tendencies of its life. The erosive energy of the latter was diffused over a succession of low boulderlike domes. Hoffmann Glacier, on the contrary, moved straight to its mark, making a descent of 5000 feet in about five miles, steadily deepening and contracting its current, and finally thrusting itself against the upper portion of Yosemite in the form of a wedge of solid ice, six miles in length by four in width. The concentrated action of this energetic glacier, combined with that of the Tenaya, accomplished the greater portion of the work of the disinterment and sculpture of the great Half Dome, North Dome, and the adjacent rocks. Its fountains, ranged along the southern slopes of the main Hoffmann ridge, gave birth to a series of flat, wing-shaped tributaries, separated from one another by picturesque walls built of massive blocks, bedded and jointed like masonry. The story of its death is not unlike that of the Yosemite Creek, though the declivity of its channel and equal exposure to sun-heat prevented any considerable portion from passing through a torpid condition. It was first burned off on its lower course; then, creeping slowly back, lingered a while at the base of its mountains to finish their sculpture, and encircle them with a zone of moraine soil for gardens and forests.

The gray slopes of Mount Hoffmann are singularly barren in aspect, yet the traveler who is so fortunate as to ascend them will find himself in the very loveliest gardens of the Sierra. The lower banks and slopes of the basin are plushed with chaparral rich in berries and bloom—a favorite resort for bears; while the middle region is planted with the most superb forest of silver-fir I ever beheld. Nowhere are the cold footsteps of ice more warmly covered with light and life.

TENAYA GLACIER

The rugged, strong-limbed Tenaya Glacier was about twelve miles long, and from half a mile to two and a half miles wide. Its depth varied from near 500 to 2000 feet, according as its current was outspread in many channels or compressed in one. Instead of drawing its supplies directly from the summit fountains, it formed one of the principal outlets of the Tuolumne *mer de glace*, issuing at once from this noble source, a full-grown glacier two miles wide and more than a thousand feet deep. It flowed in a general southwesterly direction, entering Yosemite at the head, between Half and North domes. In setting out on its life-work it moved slowly, spending its strength in ascending the Tuolumne divide, and in eroding a series of parallel sub-channels leading over into the broad, shallow basin of Lake Tenaya. Hence, after uniting its main current, which had been partially separated in crossing the divide, and receiving a swift-flowing affluent from the fountains of Cathedral Peak, it set forth again with renewed vigor, pouring its massive floods over the southwestern rim of the basin in a series of splendid cascades; then, crushing heavily against the ridge of Clouds Rest, curved toward the west, quickened its pace, focalized its wavering currents, and bore down upon Yosemite with its whole concentrated energy. Toward the end of the ice-period, and while the upper tributaries of its Hoffmann companion continued to grind rock-meal for coming forests, the whole body of Tenaya became torpid, withering simultaneously from end to end, instead of dying gradually from the foot upward. Its upper portion separated into long parallel strips extending between the Tenaya basin and Tuolumne *mer de glace*. These, together with the shallow ice-clouds of the lake-basin, melted rapidly, exposing broad areas of rolling rock-waves and glossy pavements, on whose channelless surface water ran everywhere wild and free. There are no very extensive morainal accumulations of any sort in the basin. The largest occur on the divide, near the Big Tuolumne Meadows, and on the sloping ground northwest of Lake Tenaya.*

For a distance of six miles from its mouth the pathway of this noble glacier is a simple trough from 2000 to 3000 feet deep, countersunk in the solid granite, with sides inclined at angles with the horizon of from thirty to fifty degrees. Above this its grand simplicity is interrupted by huge moutonéed ridges extending in the general direction of its length over into the basin of Lake Tenaya. Passing these, and crossing the bright glacial pavements that border the lake, we find another series of ridges, from 500 to 1200 feet in height, extending over the divide to the ancient Tuolumne ice-fountain. Their bare moutonéed forms and polished surfaces indicate that they were overswept, existing at first as mere boulders beneath the mighty glacier that flowed in one unbroken current between Cathedral Peak and the southeast shoulder of the Hoffmann range.

---

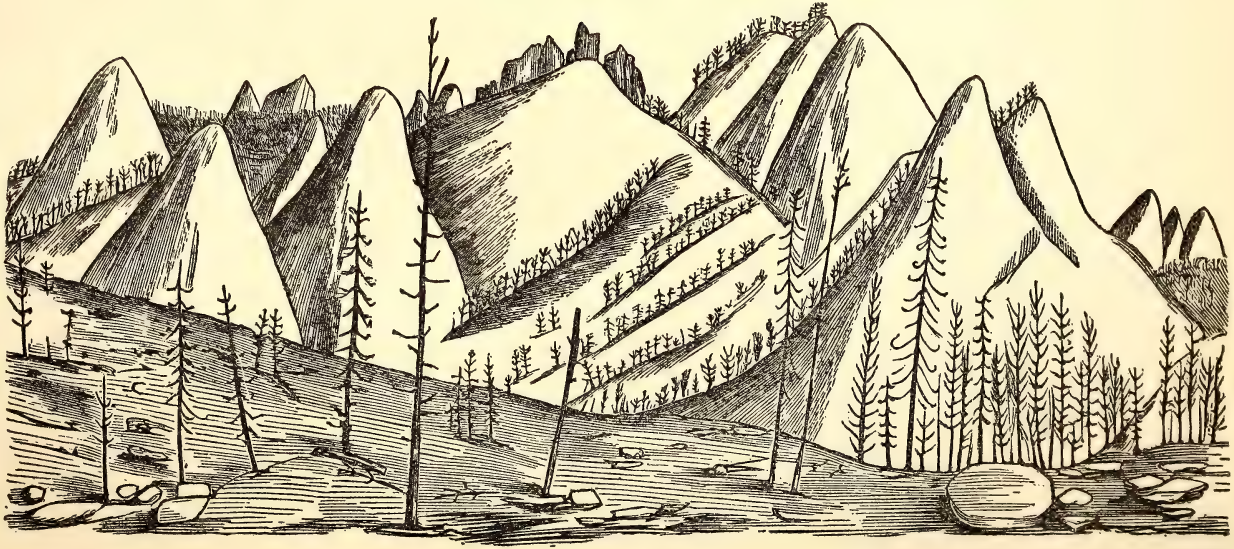
* Because the main trunk died almost simultaneously throughout its whole extent, we, of course, find no terminal moraines curved across its channels; nor, since its banks were in most places too steeply inclined for their disposition, do we find much of the two laterals. One of the first Tenaya glacierets was developed in the shadow of Yosemite Half Dome. Others were formed along the bases of Coliseum Peak, and the long, precipitous walls extending from near Lake Tenaya to the Big Tuolumne Meadows. The latter, on account of the uniformity and continuity of their protecting shadows, formed moraines of considerable length and regularity, that are liable to be mistaken for portions of the left lateral moraine of the main glacier.

NEVADA, OR SOUTH LYELL GLACIER

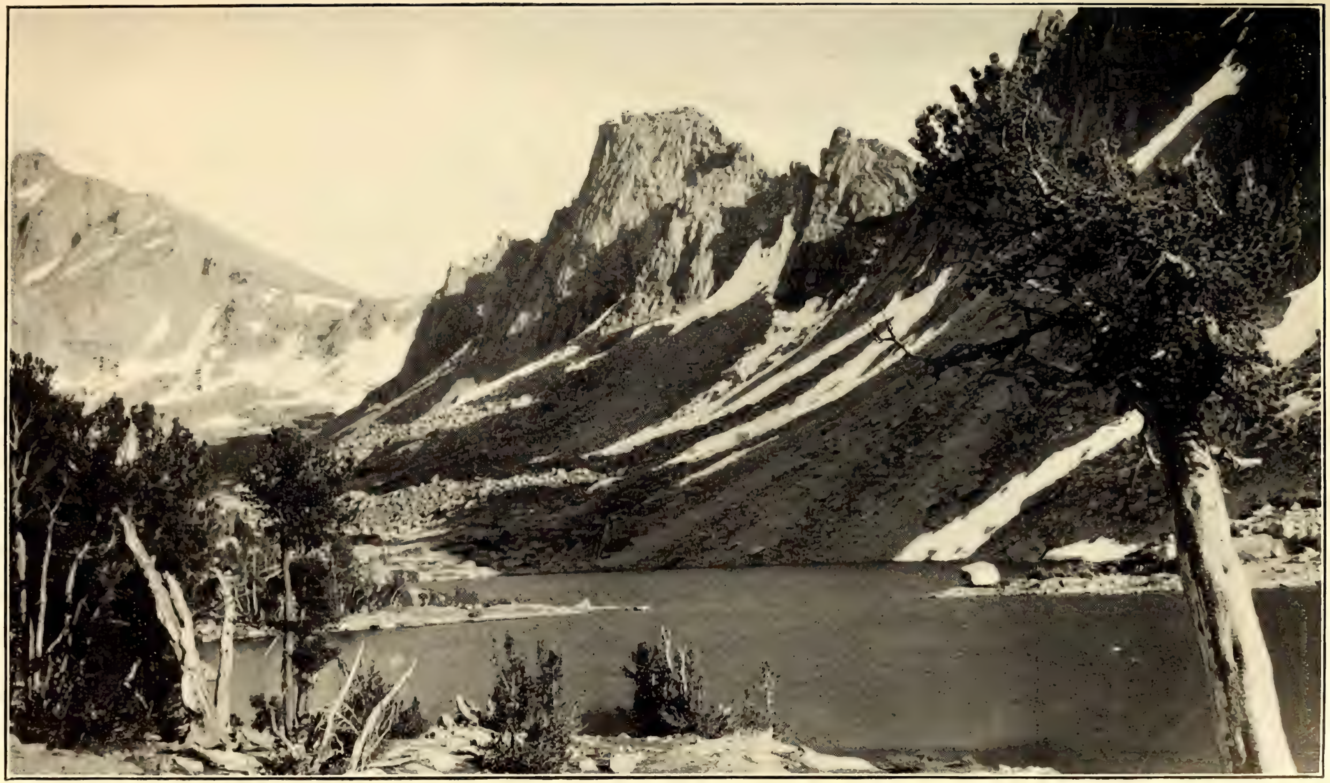
The South Lyell Glacier was less influential than the last, but longer and more symmetrical, and the only one of the Merced system whose sources extended directly to the main summits on the axis of the chain. Its numerous ice-wombs, now mostly barren, range side by side in three distinct series at an elevation above sea-level of from 10,000 to 12,000 feet. The first series on the right side of the basin extends from the Matterhorn to Cathedral Peak in a northwesterly direction a distance of about twelve miles. The second series extends in the same direction along the left side of the basin in the summits of the Merced group, and is about six miles in length. The third is about nine miles long, and extends along the head of the basin in a direction at right angles to that of the others, and unites with them at their southeastern extremities. The three ranges of summits in which these fountains are laid, and the long continuous ridge of Clouds Rest, enclose a rectangular basin, leaving an outlet near the southwest corner opposite its principal *névé* fountains, situated in the dark jagged peaks of the Lyell group. The main central trunk, lavishly fed by these numerous fountains, was from 1000 to 1400 feet in depth, from three-fourths of a mile to a mile and a half in width, and about fifteen miles in length. It first flowed in a northwesterly direction for a few miles, then curving toward the left, pursued a westerly course, and poured its shattered cascading currents down into Yosemite between Half Dome and Mount Starr King.

Could we have visited Yosemite toward the close of the glacial period, we should have found its ice-cascades vastly more glorious than their tiny water representatives of the present hour. One of the most sublime of these was formed by that portion of the South Lyell current which descended the broad, rounded shoulder of Half Dome. The whole glacier resembled an oak with a gnarled swelling base and wide-spreading branches. Its banks, a few miles above Yosemite, were adorned with groups of picturesque rocks of every conceivable form and mode of combination, among which glided swift-descending affluents, mottled with black slates from the summits, and gray granite blocks from ridges and headlands. One of the most interesting facts relating to the early history of this glacier is, that the lofty cathedral spur forming the northeast boundary of its basin was broken through and overflowed by deep ice-currents from the Tuolumne region. The scored and polished gaps eroded by them in their passage across the summit of the spur, trend with admirable steadiness in a northeasterly and southwesterly direction; a fact of great importance, considered in its bearings upon questions relating to the universal ice-sheet. *Traces of a similar overflow from the northeast occur on the edges of the basins of all the Yosemite glaciers.*

The principal moraines of the basin occur in short, irregular sections scattered along the sides of the valleys, or spread in rough beds in level portions of their bottoms, without manifesting subordination to any system whatever. This fragmentary condition is due to interruptions caused by portions of the sides of the valleys being too precipitous for moraine matter to rest upon and to breakings and down-washings of torrents and avalanches of winter snow. The obscurity resulting from these causes is further augmented by forests and underbrush, making a patient study of details indispensable to the recognition of their unity and simple grandeur. The south lateral moraine of the lower portion of the trunk may be traced about five miles, from the mouth of the north tributary of Mount Clark to the cañon of Illilouette, though simplicity of structure has in most places been prevented by the nature of the ground and by the action of a narrow margin glacier which descended against it with variable pressure from cool, shadowy slopes above. The corresponding section of the right lateral, extending from the mouth of Cathedral tributary to Half Dome, is far more perfect in structure, because of the evenness of the ground, and because the ice-wing which curved against Clouds Rest and descended against it was fully exposed to the sun, and was, therefore, melted long before the main trunk, allowing the latter to complete the formation of this section of its moraine undisturbed. Some conception of its size and general character may be obtained by following the Clouds Rest and Yosemite trail, which crosses it obliquely, leading past several cross-sec-



Portion of the Left Bank of the Channel of the South Lyell Glacier, near the Mouth of Cathedral Tributary



AT THE FOOT OF KEARSARGE PINNACLES
Photo by Philip S. Carlton

POTHOLE LAKE AND UNIVERSITY PEAK
Photo by Walter L. Huber

tions made by small streams. A few slate boulders from the Lyell group may be seen, but the main mass of the moraine is composed of ordinary granite and porphyry, the latter having been derived from Feldspar and Cathedral valleys.

The elevation of the top of the moraine near Cathedral tributary is about 8100 feet; near Half Dome, 7600. It rests upon the side of the valley at angles varying from fifteen to twenty-five degrees, and in many places is straight and uniform as a railroad embankment. The greatest depth of the glacier between Clouds Rest and Mount Starr King, measuring from the highest points of its lateral moraines, was 1300 feet. The recurrence of ridges and terraces on its sides indicate oscillations in the level of the glacier, probably caused by clusters of cooler or snowier seasons which no doubt diversified the great glacial winter, just as clusters of sunny or stormy days occasion fluctuations in the level of the streams and prevent monotony in our annual winters. When the depth of the South Lyell Glacier diminished to about 500 feet, it became torpid, on account of the retardation caused by the roughness and crookedness of its channel. But though it henceforth made no farther advance of its whole length, it possessed feeble vitality—in small sections, of exceptional slope or depth, maintaining a squirming and swedging motion, while it lay dying like a wounded serpent. The numerous fountain wombs continued fruitful long after the lower valleys were developed and vitalized with sun-heat. These gave rise to an imposing series of short residual glaciers, extending around three sides of the quadrangle basin, a distance of twenty-four miles. Most of them have but recently succumbed to the demands of the changing seasons, dying in turn, as determined by elevation, size, and exposure. A few still linger in the loftiest and most comprehensive shadows, actively engaged upon the last hieroglyphics which will complete the history of the South Lyell Glacier, forming one of the noblest and most symmetrical sheets of ice manuscripts in the whole Sierra.

ILLILOUETTE

The broad, shallow glacier that inhabited the basin of Illilouette more resembled a lake than a river, being nearly half as wide as it was long. Its greatest length was about ten miles, and its depth perhaps nowhere much exceeded 700 feet. Its chief fountains were ranged along the western side of the Merced spur at an elevation of about 10,000 feet. These gave birth to magnificent affluents, flowing in a westerly direction for several miles, in full independence, and uniting near the center of the basin. The principal trunk curved northward, grinding heavily against the lofty wall forming its left bank, and finally poured its ice into Yosemite by the South Cañon between Glacier Point and Mount Starr King. All the phenomena relating to glacial action in this basin are remarkably simple and orderly, on account of the sheltered positions occupied by its principal fountains with reference to the unifying effects of ice-currents from the main summits of the chain. A fine general view, displaying the principal moraines sweeping out into the middle of the basin from Black, Red, Gray, and Clark mountains may be obtained from the eastern base of the cone of Starr King. The right lateral of the tributary which took its rise between Red and Black mountains is a magnificent piece of ice-work. Near the upper end, where it is joined to the shoulder of Red Mountain, it is 250 feet in height, and displays three well-marked terraces. From the first to the second of these, the vertical descent is eighty-five feet, and inclination of the surface fifteen degrees; from the second to the third, ninety-five feet, and inclination twenty-five degrees; and from the third to the bottom of the channel, seventy feet, made at an angle of nineteen degrees. The smoothness of the uppermost terrace shows that it is considerably more ancient than the others, many of the blocks of which it was composed having crumbled to sand.

A few miles farther down, the moraine has an average slope in front of about twenty-seven degrees, and an elevation above the bottom of the channel of six hundred and sixty-six feet. More than half of the side of the channel from the top is covered with moraine matter, and overgrown with a dense growth of chaparral, composed of manzanita, cherry, and castanopsis. Blocks of rose-colored granite, many of them very large, occur at intervals all the way from the western base of Mount Clark to Starr King, indicating exactly the course pursued by the ice when the north divide of the basin was overflowed, Mount

Clark being the only source whence they could possibly have been derived.

Near the middle of the basin, just where the regular moraines flatten out and disappear, there is outspread a smooth gravel slope, planted with the olive-green *Arctostaphylos glauca* so as to appear in the distance as a delightful meadow. Sections cut by streams show it to be composed of the same material as the moraines, but finer and more water-worn. The main channel, which is narrow at this point, appears to have been dammed up with ice and terminal moraines, thus giving rise to a central lake, at the bottom of which moraine matter was re-ground and subsequently spread and leveled by the impetuous action of its outbreaking waters. The southern boundary of the basin is a strikingly perfect wall, extending sheer and unbroken from Black Mountain* to Buena Vista Peak, casting a long, cool shadow all through the summer for the protection of fountain snow. The northern rim presents a beautiful succession of smooth undulations, rising here and there to a dome, their pale gray sides dotted with junipers and silver-leafed pines, and separated by dark, feathery base-fringes of fir.

The ice-plows of Illilouette, ranged side by side in orderly gangs, have furrowed its rocks with admirable uniformity, producing irrigating channels for a brood of wild streams, and abundance of deep, rich soils, adapted to every requirement of garden and grove. No other section of the Yosemite uplands is in so high a state of glacial cultivation. Its clustering domes, sheer walls, and lofty towering peaks, however majestic in themselves, are only border adornments, submissively subordinate to their sublime garden center. The basins of Yosemite Creek, Tenaya, and South Lyell are pages of sculptured rocks embellished with gardens. The Illilouette basin is one grand garden embellished with rocks.

Nature manifests her love for the number five in her glaciers, as well as in the petals of the flowers which she plants in their pathways. These five Yosemite glaciers we have been sketching are as directly related to one another, and for as definite an object, as are the organs of a plant. After uniting in the valley, and expending the down-thrusting power with which they were endowed by virtue of the declivity of their channels, the trunk flowed *up out of* the valley without yielding much compliance to the crooked and comparatively small river cañon extending in a general westerly direction from the foot of the main valley. In effecting its exit a considerable ascent was made, traces of which are to be seen in the upward slope of the worn, rounded extremities of the valley walls. Down this glacier-constructed grade descend both the Coulterville and Mariposa trails; and we might further observe in this connection that, because the ice-sheet near the period of transition to distinct glaciers flowed southwesterly, the south lips of all Yosemites trending east and west, other conditions being equal, are more heavily eroded, making the construction of trails on that side easier. The first trail, therefore, that was made into Yosemite, was of course made down over the south lip. The only trail entering the Tuolumne Yosemite descends the south lip, and so also does the only trail leading into the Kings River Yosemite. A large majority of deer and bear and Indian trails likewise descend the south lips of Yosemites. So extensively are the movements of men and animals controlled by the previous movements of certain snow-crystals combined as glaciers.

---

* This mountain occurs next south of Red Mountain, and must not be confounded with the Black Mountain six miles farther south.

The direction pursued by the Yosemite trunk, after escaping from the valley, is unmistakably indicated by its immense lateral moraines extending from its lips in a west-southwesterly direction. The right moraine was disturbed by the large tributary of Cascade Creek, and is extremely complicated in structure. The left is simple until it comes under the influence of tributaries from the southeast, and both are further obscured by forests which flourish upon their mixed soil, and by the washing of rains and melting snows, and the weathering of their boulders, making a smooth, sandy, unmorainelike surface. It is, therefore, the less to be wondered at that the nature of these moraines, which represent so important a part of the chips hewn from the valley in the course of its formation, should not have been sooner recognized. *Similarly situated moraines extend from the lips of every Yosemite* wherever the ground admits of their deposition and retention. In Hetch-Hetchy and other smaller and younger Yosemites of the upper Merced, the ascending *striæ* which measure the angle of ascent made by the bottom of their glaciers in their outflow are still clearly visible.

Fig. 1 is the horizontal section of the end of a Yosemite valley, showing the ordinary boat-shaped edge, and lateral moraines (M M) extending from the lips. The moraines and arrows indicate the course pursued by the outflowing ice. Fig. 2 represents the right lip of Yosemite, situated on the upper Merced below the confluence of Cathedral tributary. The whole lip is polished and striated. The arrows indicate the direction of the *striæ,* which measure the angle of ascent made by the outflowing ice.

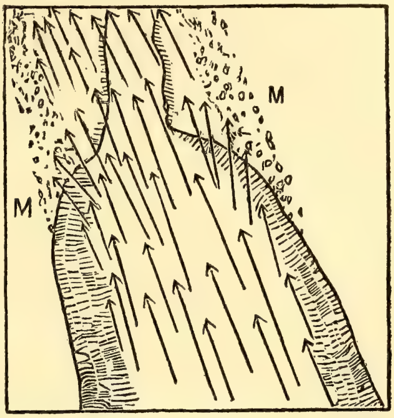


Fig. 1.

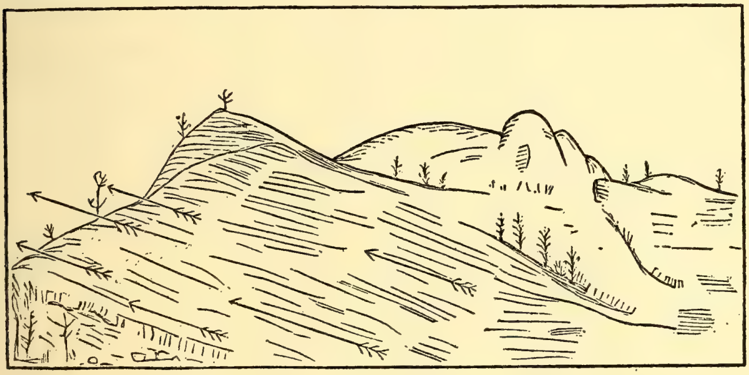


Fig. 2.

In the presentation of these studies, we have proceeded thus far with the assumption that all the valleys of the region are valleys of erosion, and that glaciers were the principal eroding agents; because the intelligible discussion of these propositions requires some knowledge of the physiognomy and general configuration of the region, as well as of the history of its ancient glaciers. Our space is here available only for very brief outlines of a portion of the argument, which will be gradually developed in subsequent articles.

That fossils were created as they occur in the rocks, is an ancient doctrine, now so little believed that geologists are spared the pains of proving that nature ever deals in fragmentary creations of any sort. All of our valleys are clearly fragmentary in some degree. Fig. 3 is a section across Yosemite Valley from Indian Cañon, which displays the stumps of slabs and columns of which the granite is here composed. Now, the complements of these broken rocks must have occupied all, or part, or more than all of the two portions of the valley, A C D and B E F. The bottom, A B, is covered with drift, but we may assume that if it were laid bare we would find it made up of the ends of slabs and columns like the sides, which filled the space A C E B; because in all valleys where the bottom is naked, the broken stumps *do* appear, showing that this valley was not formed by a fold in the mountain surface, or by a splitting asunder, or by subsidence, but by a breaking up and translation of rocks which occupied its place; or, in other words, by erosion.

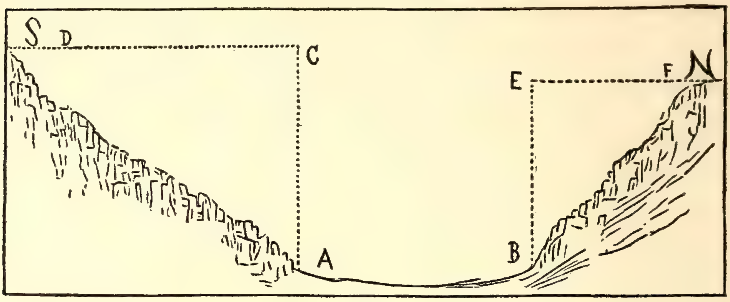


Fig. 3

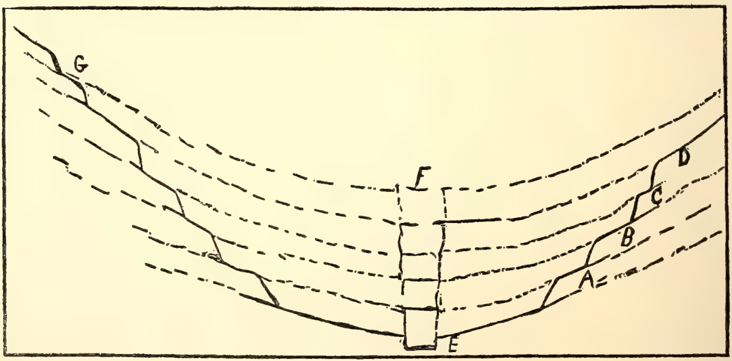


Fig. 4.

Fig. 4 is a section across the lower portion of the valley of Illilouette south of Mount Starr King. In this case the bottom is naked, and the dotted reconstructed portions of the huge granite folds A B C D have evidently been eroded.* Even the smoothly curved trough of two rock-waves which afford sections like Fig. 5 can not be regarded as a valley originating in a fold of the surface, for we have shown in the first paper of this series that domes or extended waves, with a concentric structure like A C, may exist as concretionary or crystalline masses beneath the surface of granite possessing an entirely different structure or no determinate structure whatever, as in B.

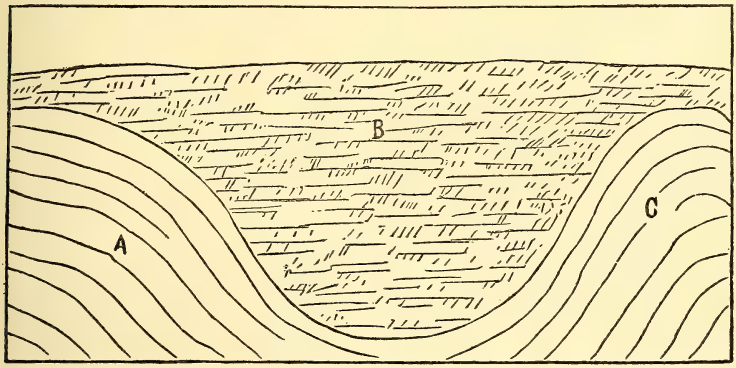


Fig. 5.

The chief valley-eroding agents are water and ice. Each has been vaguely considered the more influential by different observers, although the phenomena to which they give rise are immensely different. These workmen are known by their chips, and only glacier chips form moraines which correspond in kind and quantity to the size of the valleys and condition of their surfaces. Also their structure unfolds the secret of their origin. The constant and inseparable relations of trend, size, and form which these Sierra valleys sustain to the ice-fountains in which they all head, as well as their grooved and broken sides, proclaim the eroding force to be ice. We have shown in the second paper† that the trend of Yosemite valleys is always a direct resultant of the forces of their ancient glaciers, modified by obvious peculiarities of physical structure of their rocks. The same is true of all valleys in this region. We give one example, the upper Tuolumne Valley, which is about eight miles long, and from 2000 to 3000 feet deep, and trends in a generally northerly direction. If we go to its head on the base of Mount Lyell, and follow it down, we find that after trending steadily about two miles it makes a bend of a few degrees to the *left* (A, Fig. 6). Looking for the cause, we perceive a depression on the *opposite* or right wall; ascending to it, we find the depression to be the mouth of a tributary valley which leads to a crater-shaped ice-fountain (B) which gave rise to the tributary glacier that, in thrusting itself into the valley trunk, caused the bend we are studying. After maintaining the new trend thus acquired for a distance of about a mile and a half, the huge valley swerves lithely to the *right* at C. Looking for the cause, we find another tributary ice-grooved valley coming in on the *left*, which like the first conducts back to an ice-womb (D) which gave birth to a glacier that in uniting with the trunk pushed it aside as far as its force, modified by the direction, smoothness, and declivity of its channel, enabled it to do. Below this, the noble valley is again pushed round in a curve to the *left* by a series of small tributaries which, of course, enter on the *right*, and with each change in trend there is always a corresponding change in width or depth, or in both. *No valley changes its direction without becoming larger.* On nearing the Big Meadows it is swept entirely round to the west by huge glaciers, rep-

---

* Water never erodes a wide U-shaped valley in granite, but always a narrow gorge like *E F*, in Fig. 4.

† Reprinted in Sierra Club Bulletin, Vol. X, No. 1, January 1916.

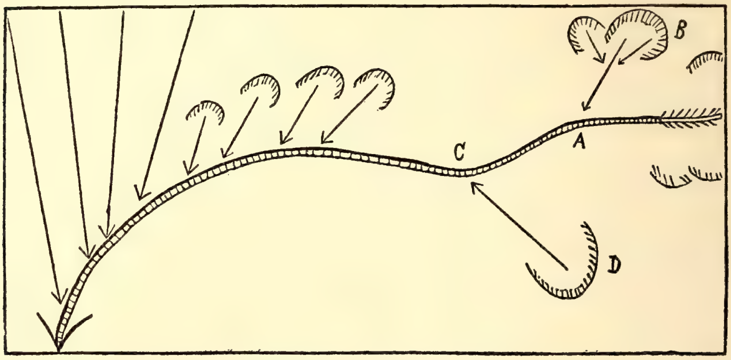
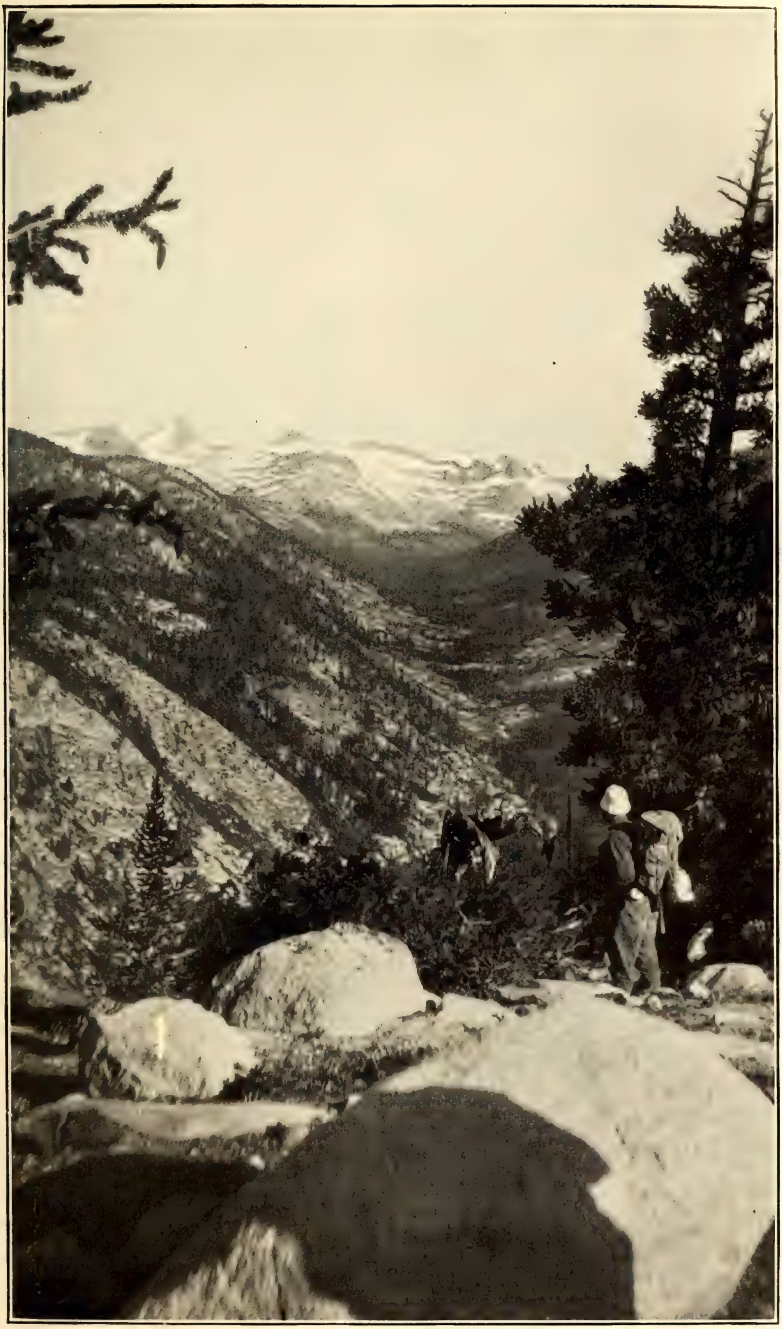


Fig. 6.—Illustrating Bend of Upper Tuolumne Valley



UP BIG ARROYO, FROM RIM ABOVE MORAINE LAKE
Photo by Everett Shepardson

ON THE JOHN MUIR TRAIL
Descending snow-field at head of Shepard Cañon
Photo by Walter L. Huber

resented by the large arrows, which descended from the flanks of Mounts Dana, Gibbs, Ord, and others to the south. For thirty miles farther, we find everywhere displayed the same delicate yielding to glacial law, showing that, throughout the whole period of its formation, the huge granite valley was lithe as a serpent, and winced tenderly to the touch of every tributary. So simple and sublime is the dynamics of the ancient glaciers.

Every valley in the region gives understandable evidence of having been equally obedient and sensitive to glacial force, and to no other. The erosive energy of ice is almost universally underrated, because we know so little about it. Water is our constant companion, but we cannot dwell with ice. Water is far more human than ice, and also far more outspoken. If glaciers, like roaring torrents, were endowed with voices commensurate with their strength, we would be slow to question any ascription of power that has yet been bestowed upon them. With reference to size, we have seen that the greater the ice-fountains the greater the resulting valleys; but no such direct and simple proportion exists between areas drained by water streams and the valleys in which they flow. Thus, the basin of Tenaya is *not one-fourth the size* of the South Lyell, although *its cañon is much larger*. Indeed, many cañons have no streams at all, whose topographical circumstances are also such as demonstrate the impossibility of their ever having had any. This state of things could not exist if the water streams which succeeded the glaciers could follow in their tracks, but the mode and extent of the compliance which glaciers yield to the topography of a mountainside, is very different from that yielded by water streams; both follow the lines of greatest declivity, but the former in a far more general way. Thus, the greater portion of the ice-current which eroded Tenaya Cañon flowed over the divide from the Tuolumne region, *making an ascent of over 500 feet*. Water streams, of course, could not follow; hence the dry channels, and the disparity, to which we have called attention, between Tenaya Cañon and its basin.

Anyone who has attentively observed the habits and gestures of the upper Sierra streams, could not fail to perceive that they are young, and but little acquainted with the mountains; rushing wildly down steep inclines, whirling in pools, sleeping in lakes, often halting with an embarrassed air and turning back, groping their way as best they can, moving most lightly just where the glaciers bore down most heavily. With glaciers as a key the secrets of every valley are unlocked. Streams of ice explain all the phenomena; streams of water do not explain any; neither do subsidences, fissures, or pressure plications.

We have shown in the previous paper that *post-glacial streams have not eroded the 500,000th part of the upper Merced cañons.* The deepest water gorges with which we are acquainted are between the upper and lower Yosemite falls, and in the Tenaya Cañon about four miles above Mirror Lake. These are from twenty to a hundred feet deep, and are easily distinguished from ice-eroded gorges by their narrowness and the ruggedness of their washed and pot-holed sides.

The gorge of Niagara River, below the falls, is perhaps the grandest known example of a valley eroded by water in compact rock; yet, comparing equal lengths, the glacier-eroded valley of Yosemite is a hundred times as large, reckoning the average width of the former 900 feet, and depth 200. But the erosion of Yosemite Valley, besides being a hundred times greater, was accomplished in hard granite, while the Niagara was in shales and limestones. Moreover, Niagara cañon, as it now exists, expresses nearly the whole amount of erosion effected by the river; but the present Yosemite is by no means an adequate expression of the whole quantity of glacial erosion effected there since the beginning of the glacial epoch, or even from that point in the period when its principal features began to be developed, because the walls were being cut down on the top simultaneously with the deepening of its bottom. We may fairly ascribe the formation of the Niagara gorge to its river, because we find it at the upper end engaged in the work of its further extension toward Lake Erie; and for the same reason we may regard glaciers as the workmen that excavated Yosemite, for at the heads of some of its branches we find small glaciers engaged in the same kind of excavation. Merced cañons may be compared to mortises in the ends of which we still find the chisels that cut them, though now rusted and worn out. If Niagara River should vanish, or be represented only by a small brook, the evidence of the erosion of its gorge would still remain in a thousand water-worn monuments upon its walls. Nor, since Yosemite glaciers have been burned off by the sun, is the proof less conclusive that in their greater extension they excavated Yosemite, for, both in shape and sculpture, *every Yosemite rock is a glacial monument.*

When we walk the pathways of Yosemite glaciers and contemplate their separate works—the mountains they have shaped, the cañons they have furrowed, the rocks they have worn, and broken, and scattered in moraines—on reaching Yosemite, instead of being overwhelmed as at first with its uncompared magnitude, we ask, *Is this all?* wondering that so mighty a concentration of energy did not find yet grander expression.

INDIAN VILLAGE AND CAMP SITES IN YOSEMITE VALLEY*

By C. Hart Merriam

◆

FOR ages before its discovery by white men Yosemite Valley was inhabited by Indians. Owing to its isolated position and the abundance of mountain trout, quail, grouse, deer, bear, and other game animals, and of acorns, manzanita-berries, and other vegetable foods, it supported a large population. This is attested not only by the statements of the Indians themselves, but also by the surprisingly large number of villages whose locations have been determined. These were of three kinds: (1) *permanent villages,* occupied the year round, though somewhat depleted in winter; (2) *summer villages,* occupied from May to October, after which the inhabitants moved down into the milder climate of Merced Cañon, where there was little or no snow; and (3) *seasonal camps* for hunting and fishing. The camps were definitely located and each was regularly occupied at a particular season.

It has not always been possible to distinguish between village-sites and camp-sites, but, taken collectively, I have been able, with the help of resident Indians, to locate and name no less than thirty-seven. All of these were in the valley proper, and at least six were occupied as late as 1898. To the list I have added sixteen located in the cañon of the Merced from the Cascades to Ferguson Station, six miles below El Portal, making in all fifty-three villages and camps in a distance of about twenty-two miles; and doubtless there were others which my informants had forgotten.

All of these people belonged to the *Ahwaneéche* or *Ahwah'-nee Mew'-wah,* a subtribe closely akin to the neighboring *Chow-chil'-la Mew'-wah* of Chowchilla Cañon. Their language is the southernmost of the three dialects of the once great *Mé-wuk* family—a family comprising a group of closely related tribes occupying the western foothills and lower slopes of the Sierra Nevada from Cosumnes River south to Fresno Creek.

---

* This article was written in 1910, during which year I was able to complete the list of villages from the head of Yosemite Valley to Ferguson Station on the Merced, about six miles below El Portal. I had previously obtained and published the villages from Horseshoe Bend down the Merced as far as the territory of the tribe extended, and was anxious to fill the gap between *Soo-noó-koo-loon* at Ferguson and *Se-saw'-che* at Horseshoe Bend. Not having been able to do this, it seems hardly worth while to defer publication longer.

ORIGIN OF THE NAME YOSEMITE

In this connection it is interesting to recall how the name Yosemite originated. In the early spring of 1851 the valley was invaded by an Indian-chasing expedition. The word Yosemite, said to be the name of the native Indian tribe, was proposed by Dr. L. H. Bunnell, a member of the expedition, and accepted by the others while still in the valley.* During the early fifties there was some controversy between Bunnell and Hutchings as to whether the proper form was *Yo-sem'-i-te* or *Yo-ham'-i-te* (or *Yo-hem'-i-te*). Hutchings was right, *Yo-ham'-i-te* being the name of the band inhabiting a large and important village on the south bank of Merced River at the place now occupied by Sentinel Hotel and its cottages. These Indians hunted the grizzly bear, whose name—*Oo-hoó-ma-te* or *O-ham'-i-te*—gave origin to their own. The tribe next north of the valley called the grizzly *Oo-soó-ma-te,* which doubtless accounts for the euphonious form given by Bunnell and now universally accepted.

PECULIAR CLASSIFICATION OF THE VILLAGES

The villages and camps were sharply divided into two categories—those *north* of Merced River and those *south* of it. This division has a far deeper and more ancient significance than that indicated by the mere position of the villages with respect to the river, for it goes back to the underlying totemic beliefs that form an important part of the religion of this primitive people.

If one of the survivors is questioned as to the location of the villages, he in replying constantly makes use of the terms *inside* and *outside* as denoting one or the other side of the valley; and if the inquiry is pressed a little farther it soon develops that there is a *grizzly-bear side* and a *coyote side,* a *land side (Too-noó-kah),* and a *water side (Kik-koó-ah).* This perplexing state of affairs leads to the interesting discovery that

---

*L. H. Bunnell, "How the Yo-Semite Valley was Discovered and Named." *Hutchings California Magazine,* pp. 498-504, San Francisco, May, 1859.

after all there are only two sides, but that each of them has four names: that the north side, inside, grizzly-bear side, and land side are one and the same—namely, the side *north* of Merced River; while the south side, outside, coyote side, and water side are only so many different names for the side *south* of Merced River.

The names most commonly used by the Indians themselves for the two sides are *Oo-hoó-mă-tāt ko-tó-wahk* (or *Oo-hoó-mă-te ha-wā′-ah),* the grizzly-bear side, and *Ah-hā′-leet ko-tó-wahk* (or *Ah-hā′-le ha-wā′-ah),* the coyote side—from *Oo-hoó-ma-te,* the bear, and *Ah-hā′-le,* the coyote, respectively.

It is not difficult to see how *Oo-hoó-ma-te,* the bear, an important personage among the early animal-people, might be chosen to represent the land animals; but why *Ah-há-le,* the coyote, should stand for the water-people is not so obvious. For the explanation one must look far back into the mythology of these Indians, in which it appears that before there were any real people in the world *Ah-há-le,* the coyote-man, one of the early divinities of the animal-people, came over the ocean from beyond the sea—for which reason he is ranked with the water-people.

Returning to our more immediate subject, the village and camp sites of Yosemite Valley, it is now easier to understand the grouping employed by the Indians. Indians are naturally methodical, and it is their custom to classify objects and places, and in speaking of them to begin at a fixed point and proceed in orderly sequence. Thus, in seeking the names of animals and plants and of geographic locations, I have several times provoked the undisguised disgust of my informant by not putting my questions in what he or she deemed the proper sequence.

In enumerating the village and camp sites of Yosemite Valley the Indians begin at the upper (or east) end of the north side—the grizzly-bear side—and proceed westerly to *Til-til′-ken-ny* at the lower end of the valley, and then cross the Merced to the south side—the coyote side—and return easterly to the upper end.

Following this sequence, the names and locations of the villages and camps are as follows:

ON THE NORTH (OR GRIZZLY-BEAR) SIDE—OO-HOÓ-MA-TAT KO-TÓ-WAHK

1. *Hoo-ké-hahtch'-ke.*—Situated at the extreme upper end of the valley between Merced River and Tenaya Creek, and just below the mouth of Tenaya Cañon. A summer village inhabited up to about twenty years ago.

2. *Hol'-low', or Lah'-koó-hah.*—Indian cave, immediately under Washington Column at the mouth of Tenaya Cañon; a low, broad, and deep recess under a huge rock. Said to have been occupied as a winter shelter, and also when attacked by the Mono Lake Piutes. The overhanging rock is black from the smoke of ages, and far back in the cave large quantities of acorn-shells have been found. The word *Lah-koó-hah,* often applied to Indian Cave, is a call meaning "come out."

3. *Wis'-kah-lah.*—A large summer camp on a northward bend of Merced River, a little west of Royal Arches. Western part of site now occupied by a small settlement known as Kinneyville.

4. *Yó-watch-ke* (sometimes nicknamed *Mah-chá-to,* meaning "edge" or "border," because of its position on the border of the valley).—Large village at mouth of Indian Cañon; still occupied. The slightly sloping gravel and sand "fan" on which this village is situated is the warmest place in Yosemite Valley, having a southwesterly exposure and receiving a maximum of midday and afternoon sunshine. Several species of shrubs belonging to the Upper Sonoran zone—the one next below the Transition zone, in which Yosemite Valley lies—thrive on this hot sandy plain among and outside of the scattered ponderosa pines and black oaks. These are *Ceanothus divaricatus, Rhus trilobata, Lupinus ornatus, Eriodictyon glutinosum, Pentstemon breviflorus.*

5. *Ah-wah'-ne.*—Village on Black Oak Flat, extending from site of Galen Clark's grave easterly nearly to *Yó-watch-ke.* As in the case of most of the villages, the village name was applied also to a definite tract of land belonging to it. This area, in the case of *Ah-wah'-ne,* was a piece of level ground of considerable size, beginning on the west along a north and south line passing through Sentinel Hotel and reaching easterly nearly to the mouth of Indian Cañon. The cemetery was on this tract, as was also the barn formerly belonging to J. B. Cooke. This being the largest tract of open level ground in the valley, the name *Ah-wah'-ne* came to be applied by outside Indians to the whole valley.

6. *Koom-i-ne,* or *Kom-i-ne.*—The largest and most important village in the valley, situated on the north side of the delta of Yosemite Creek just below Yosemite Fall *(Ah-wah'-ning chú-luk-ah-hu,* slurred to *Chó-luk),* and extending southwesterly at the base of the talus-slope under the towering cliffs for about three-quarters of a mile, reaching almost or quite to Three Brothers *(Haw'-hawk).* Old Chief Tenaya had a large earth-covered ceremonial-house *(hang-e)* by a big oak tree in this village. The Government soldiers stationed in the valley took possession

of the site and established their camp there in 1907, forcing the Indians out. (Occupied by Indians during all my earlier visits.)

7. *Wah-hó-gah.*—Small village about half a mile west-southwest of *Koom-í-ne,* on or near edge of meadow.

8. *Soo-sem'-moo-lah.*—Village at northwest end of old Folsom bridge (now the ford), less than half a mile south of Rocky Point.

9. *Hah-kí-ah.*—Large village only a short distance (less than one-eighth mile) below *Soo-sem'-moo-lah,* and likewise south of Three Brothers *(Haw'-hawk).* A roundhouse, or *hang-e,* was located here, not far from old Folsom bridge. The three villages, *Wah-hó-gah, Soo-sem'-oo-lah,* and *Hah-kí-ah,* were inhabited up to about twenty years ago.

10. *Kom'-pom-pá-sah,* or *Pom'-pom-pá-sah.*—Small village only a little below *Hah-kí-ah,* and also south of Three Brothers, or under the talus slope of the cañon immediately west of Three Brothers.

11. *Aw'-o-koi-e.*—Small village below and slightly east of the tall pine growing in a notch on the broad south face of El Capitan. The native Indian name of the gigantic rock cliff which we call El Capitan is *To-tó-kon oo-lah,* from *To-tó-kon,* the Sandhill Crane, a chief of the First People.

12. *He-lé-jah* (the mountain lion).—Small village under El Capitan a little west of *Aw'-o-koi-e.*

13. *Ha-eng'-ah.*—Small village under El Capitan, and only a little west of *He-lé-jah.*

14. *Yu-á-chah.*—Still another village under El Capitan, and only a short distance west of *Ha-eng'-ah.*

15. *Hep-hep'-oo-ma.*—Village where present Big Oak Flat road forks to leave the main road, south of the steep cañon which forms the west wall of El Capitan, and near west end of the big El Capitan Meadows *(To-tó-kon oó-lah' i-e-hu).* The five villages, *Aw'-o-koi-e, He-lé-jah, Ha-eng'-ah, Yu-á-chah,* and *Hep-hep'-oo-ma,* were summer villages occupied from April to late October or early November.

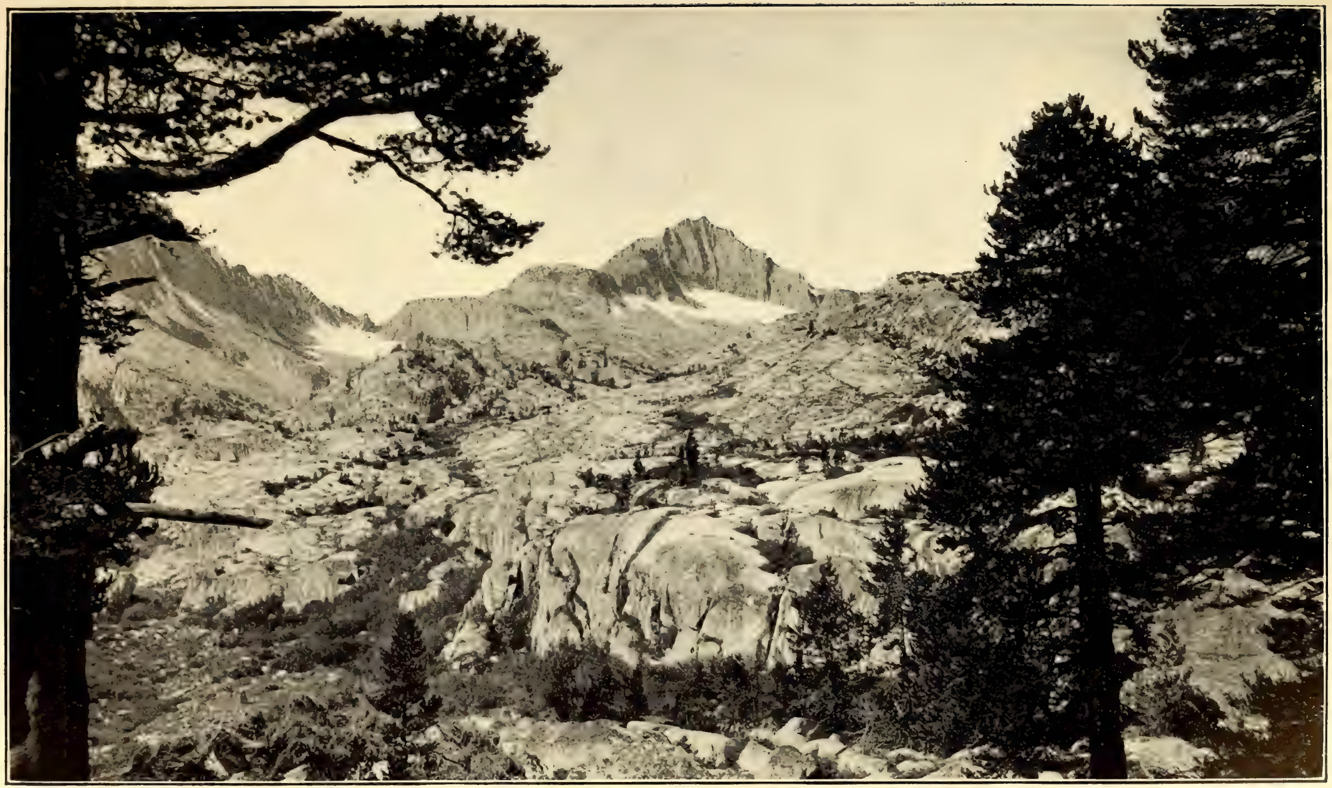
16. *Tí-e-té-mah.*—Village only a short distance below *Hep-hep'-oo-ma,* and close to El Capitan bridge.

17. *Ho-kó-nah.*—Small village a little below *Tí-e-té-mah,* and near site of old (shack) house.

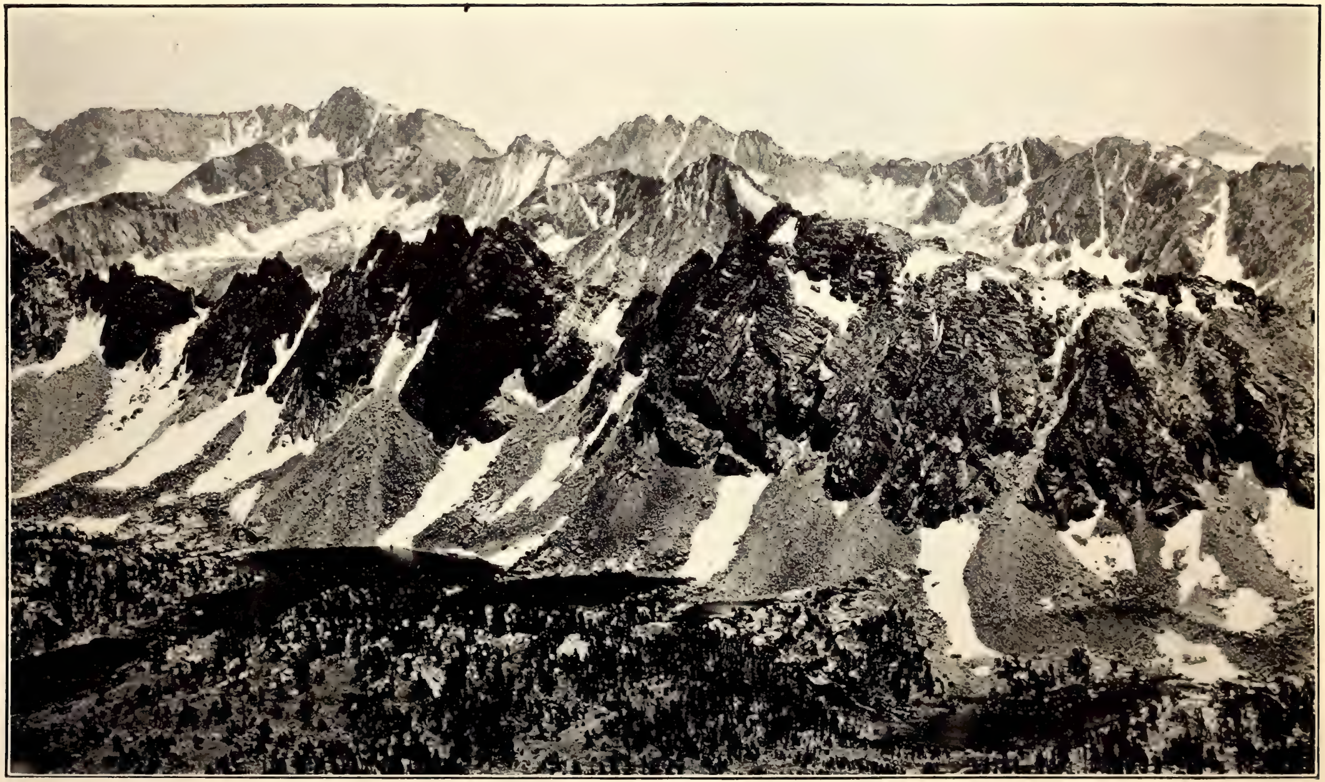
18. *Wé-tum-taw.*—Village by a small meadow a short distance below *Ho-kó-nah,* and east of Black Spring.

19. *Poot-poo-toon,* or *Put-put-toon.*—Village in rocky place on north side of present road at Black Spring, from which it takes its name.

20. *Ah-wah'-mah.*—Lowermost (westernmost) village in Yosemite Valley, a short distance below Black Spring and above *Til-til'-ken-ny,* where the mail-carrier's cabin is located.



MOUNT BREWER
Photo by Dozier Finley



THE KINGS-KERN DIVIDE AND KEARSARGE PINNACLES FROM MOUNT GOULD
Photo by Walter L. Huber

VILLAGES ON THE SOUTH OR COYOTE SIDE—AH-HÁ-LEET KO-TÓ-WAHK

21. *Sap-pah'-sam-mah.*—Lowermost (most westerly) village or camp on south side of the valley, about half a mile east of Pohono Meadows.

22. *Lem-mé-hitch'-ke.*—Small village or camp on east side of Pohono (or Bridal Veil) Creek, just below a very large rock.

23. *Hop'-tó-ne.*—Small village or camp at base of westernmost of the lofty cliffs known as Cathedral Rocks, and close to south end of El Capitan bridge across Merced River.

24. *Wé-sum-meh'.*—Small village or camp at base of Cathedral Spires near the river, with a small meadow below; not far above *Hop'-tó-ne.*

25. *Kis'-se,* or *Kis'-se-uh.*—Large village near the river, nearly opposite *Hah-kí-ah. Kis'-se* was the westernmost of the large villages on the south side. From it easterly they occurred at frequent intervals.

26. *Chá-chá-kal-lah.*—Large village just below old Folsom bridge (ford). Formerly a sweat-house *(chap-poó)* here.

27. *Ham'-moo-ah.*—Village on Ford road, nearly opposite Three Brothers *(Wah-hah'-kah).*

28. *Loí-ah.*—Large village in open pine forest below Sentinel Rock (on ground now occupied by Camp Ahwahnee) and reaching down toward river. Occupied during my earlier visits to the valley.

29. *Hoó-koo-mé-ko-tah.*—Village a little above Galen Clark's house; looked out easterly over big meadow. Occupied during my earlier visits. *(Hoo-koo-me* is the great horned owl.)

30. *Haw-kaw-koó-e-tah (Ho-kok'-kwe-lah, Haw-kaw'-koi*).*—Large and important village on Merced River, where Sentinel Hotel and cottages now stand. Home of the band called *Yo-ham'-i-te* (or *Yo-hem'-i-te),* for whom the valley was named. The old woman Callipena was a *Yo-ham'-i-te.*

31. *Ho-low.*—Village on or near Merced River where the schoolhouse used to stand.

32. *Wah'-tahk'-itch-ke.*—Village on edge of meadow on south bend of Merced River near forks of road west of Le Conte Memorial. The wild pea *(wah-tah'-kah)* grows here.

33. *Too-yú-yú-yu.*—Large village on south bend of Merced River due north of Le Conte Memorial and close to the bridge between Le Conte Memorial (or Camp Curry) and Kinneyville.

34. *Too-lah'-kah'-mah.*—Village or camp on open ground now occupied by orchard on east side of meadow north of Camp Curry.

---

* Named from *How-kaw'-met-te,* or *How-wah-met-te,* a rocky place.

35. *Um'-ma-taw.*—Large village on present wagon-road between Camp Curry and Happy Isles; was some distance from the river; water was fetched from a spring.

36. *Ap'-poo-meh.*—Camp on Merced River below Vernal Fall.

37.—*Kah-win'-na-bah'.*—Large summer camp in Little Yosemite, whose name it bears.

VILLAGES IN MERCED CAÑON BELOW YOSEMITE VALLEY

There were no villages in the narrow Merced Cañon between the lower end of Yosemite Valley and the Cascades, where there were a few houses called *Yí-yan'.* This name also covered the ground from Cascade Creek to the junction of the Coulterville road.

The next village on the north side was at the terminus of the new railroad at El Portal (a distance of eight or nine miles), where the villages began and continued down-stream. Most of these were permanent, but they were far larger in winter than in summer, receiving material additions from Yosemite when cold weather set in.

Sit'-ke-noó-al-lah.—Place and few houses on the south side of Merced River a little above (east of) El Portal; now Indian Wilson's place.

Kep-pek'-oo-lah.—Place and small settlement on the south side of Merced River just above El Portal; now occupied by a white man. Named from the abundance of *kep-pek',* the brake fern *(Pteris aquilina),* the rootstocks of which the Indians use for the black design in their baskets.

Kah-wah'-koo-lah.—Place and small settlement on the south side of Merced River half a mile below *Sit'-ke-noó-al-lah* and nearly opposite El Portal stable.

Sal-lah'-to.—Large village on flat now occupied by the railroad terminus at El Portal. The place at the mouth of Crane Creek at El Portal is called *Sas'-oo-lah;* formerly a few houses where the hotel stable now is.

Po-ko-nó.—Village on the north side of the Merced a quarter of a mile west of El Portal. The flat gravel and pebble bench extending along the north side of the Merced for an eighth of a mile just below El Portal was known by the same name.

Choó-pi-tah, or *Choó-pi-do.*—Large village on the north side of Merced Cañon one or one and a half miles below El Portal, at the place called Rancheria Flat (immediately west of the present Hite Mine and northeast of the bend of the river).

To-yo'ng-am'.—Small village on top of a small pointed hill on the north side of the Merced at the bend of the river just below Hite Mine (really surrounded by *Choó-pi-tah,* being situated in the middle of the flat; may have been only a roundhouse).

Soó-wut-oo-lah'.—Large and important village on large oak-forested flat on the north side of the Merced, now Switch Flat (railroad switch), just west of Hogback Ridge, which separates it from *Choó-pi-tah.* Used to be a roundhouse *(hang-e)* here.

Oí-kó-bah.—Very small old village at mouth of Moss Cañon, north side of the Merced; not room for many houses.

Kil'-mit-ten.—Big village on flat on the north side of the Merced just above the Government bridge.

Moó-lah-buk'-sa-bah'.—Village on the north side of the Merced just below and close to the Government bridge.

Haw'-too-too.—Village on the north side of the Merced. Old cabin there now, opposite the present Indian ranch where Big Nancy and others live.

Muh-chó-kah-nó.—Old village on the south side of the Merced, at present occupied by Big Nancy, Callipena, and Lucy Ann.

Wah'ng'-oo-hah.—Village on small flat on the north side of Merced Cañon, a little above the mill at Ferguson Mine.

Soo-noó-koo-loon'.—Village on the north side of Merced Cañon, at present Ferguson Station, six miles below El Portal.

SIERRA CLUB

Founded 1892

402 Mills Building, San Francisco, California

Annual Dues: $3.00, (first year $5.00)

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.

◆

John Muir, President 1892 to 1914

OFFICERS AND COMMITTEES FOR THE YEAR 1916-17

BOARD OF DIRECTORS

Joseph N. Le Conte, Berkeley .... *President*
Vernon L. Kellogg, Stanford University .... *Vice-President*
Marion Randall Parsons, Berkeley........................ *Treasurer*
William E. Colby, San Francisco.......................... *Secretary*
William F. Badè, Berkeley Albert H. Allen, Berkeley
Walter L. Huber, San Francisco Robert M. Price, Reno, Nevada
Clair S. Tappaan, Los Angeles

HONORARY VICE-PRESIDENTS

James Bryce, London, England
Henry S. Graves, Washington, D. C.
Robert Underwood Johnson, New York City
David Starr Jordan, Stanford University
J. Horace McFarland, Harrisburg, Pennsylvania
Alexander G. McAdie, Harvard University
Enos A. Mills, Estes Park, Colorado
Stephen T. Mather, Washington, D. C.

COMMITTEES

Outing Committee: William E. Colby *(Chairman and Manager),* Clair S. Tappaan *(Assistant Manager),* Joseph N. Le Conte.

Committee on Local Walks: Fred R. Parker *(Chairman),* William T. Goldsborough, A. E. Neuenberg, Leslie Gardner, Dozier Finley.

Committee on Le Conte and Parsons Memorial Lodges: Marion Randall Parsons *(Chairman),* Robert M. Price, Joseph N. Le Conte.

Auditing Committee: William F. Badè *(Chairman),* Walter L. Huber, Albert H. Allen.

Librarian: Nell R. Taggard.

Southern California Section Executive Committee: Charles J. Fox *(Chairman),* Phil S. Bernays *(Secretary,* 318 West Third Street, Los Angeles), Benjamin W. Fenton *(Treasurer),* H. E. Bailey, Mrs. Henry Braun, Ernest Dawson, Homer P. Earle, George A. White.

◆

SIERRA CLUB BULLETIN

Published annually for the members

EDITORIAL BOARD

William F. Badè .... *Editor*
William E. Colby .... *Notes and Correspondence*
Marion Randall Parsons .... *Book Reviews*
Walter L. Huber .... *Forestry Notes*
Albert H. Allen, Francis P. Farquhar,
William T. Goldsborough, Joseph N. Le Conte,
Elliott McAllister

EDITORIALS

A Quarter of a Century of Service

The year 1917 marks a quarter of a century in the life of the Sierra Club. It is natural that we should pause at this time and look back over these twenty-five years of existence to determine whether or not the organizers of the club were justified in creating it. The club's record during these years is ample justification for their faith. It has filled a need and accomplished a purpose which places the reason for its existence beyond all possible question. Growing appreciation of the incomparable natural scenery on this coast and the necessity for its preservation and safeguarding created a demand for some public-spirited body which would unselfishly and fearlessly stand in the breach until such time as the public conscience should be awakened to its real value.

The club's stand in resisting encroachments on the national parks; in favoring the creation of the early forest reservations; in reducing to reasonable numbers the cattle and sheep which at one time overran the entire Sierra, and in excluding them entirely from certain scenic areas of exceptional interest; in the recession of the Yosemite Valley to the Federal Government; in advocating the great principle that national parks should be inviolate, which was involved in the attempt to save the Hetch-Hetchy Valley; in favoring the creation of additional national parks, and its stand on other similar questions, have been in the face of powerful opposition and bitter criticism, and while it has not met with success in every instance, it has compelled the respect of its opponents, who have eventually been forced to admit that the fight was made in each instance in absolute good faith and with the honest conviction that the object sought to be accomplished was for the greatest public good.

As an advocate of the gospel of "out-of-doors" and in fostering the spirit of the true mountaineer, the club has also added much to its prestige.

The club's prime object is service; its activities in taking its members into the mountains each summer, and in the publication of information, have all been for the purpose of awakening an intelligent interest in the greater work it is striving to accomplish.

The future gives promise of equally great opportunity for continued service. While we have been deprived of the temporal leadership of that noble mountain-lover who presided over the destinies of the club for the greater part of its twenty-five years of existence—our beloved John Muir—we still have the inspiration of his message, and his words live with us as if spoken anew each day. As we journey to the mountains year after year, his spirit is there to give us renewed courage to meet the problems and carry on the great work that has fallen to our lot. We may well accept as our standard the supreme faith he expressed in these words: "We may lose this particular fight, but truth and right must prevail at last. Anyhow we must be true to ourselves and the Lord."

W. E. C.

⁂

NATIONAL PARK PROGRESS In another portion of the BULLETIN we have given a synopsis of the Progress Report made by Hon. Stephen T. Mather, Assistant to the Secretary of the Interior, who has charge of the national parks, and also extracts from the annual report of Mr. Robert B. Marshall, Superintendent of National Parks. These reports speak for themselves and indicate that the splendid work inaugurated by Mr. Mather has been carried on with increasing results during the past year. The creation of a national park service which places the parks on a firm foundation for the first time in their history, greater efficiency in administration, increased appropriations, as well as the broad-gauge way in which all the park problems are being handled, give every evidence of the wise foresight which has been displayed by this new park administration. The development of the parks is in a measure wasted energy unless a proper interest is awakened in the American public, and this can only be done through the medium of appropriate literature and press notices. Mr. Mather has fully recognized this fact, and more articles and illustrations of the parks have appeared in the newspapers and other publications during the past year than ever before. Already the increase in travel is especially noticeable, taking the Yosemite National Park as an example. The fact that the visitors during the year 1916 equaled, and even slightly exceeded, the extraordinary travel of 1915, which could be largely attributed to the Exposition in San Francisco, is most encouraging. Mr. Mather is entirely correct in attributing a large portion of the increase in travel to the fact that the parks are being opened up to motor travel, and he is doubtless justified in assuming that this travel will soon equal and finally far exceed travel from any other source. His endeavor to improve existing roads and build new roads will meet this growing demand. We note, however, with regret the attempt on the part of some of the leaders in motor travel to have the present automobile fee abolished. By advocating this they are defeating their own ends. Those of us who have had experience in the endeavor to secure appropriations from Congress for park purposes realize the impossibility of obtaining appropriations adequate to meet all the growing needs of these parks. Certain improvements demand considerable expenditures, and it is only fair that, for the present at least, the motorists who make use of these expensive highways through the parks should, by paying the comparatively small fee imposed, aid in the building and upkeep of these roads over which they travel and which exist almost exclusively for their use.

We note with profound satisfaction the steps which are being taken to create an adequate force of trained park rangers. These rangers will necessarily have to possess qualifications similar in many respects to the national forest rangers, and the Government should see that the positions offer sufficient inducement to justify qualified men in making it their lifework. There is a splendid field opening here for young men who desire to devote themselves to attractive out-of-door life.

The American public owes Mr. Mather, with the able assistance of Mr. Marshall, a great debt of gratitude in bringing about the purchase of some of the finest stands of sequoia in the Giant Forest, which is a part of the Sequoia National Park. The preservation of these big trees was the prime motive in the creation of this park, and it was a public misfortune that some of the finest of these forest giants should have been held in private ownership. Congress appropriated $50,000, and the National Geographic Society gave evidence of its splendid public spirit by appropriating the balance of $20,000 out of its own treasury, and thus completing the amount necessary to buy the more important of these private holdings which have recently been transferred to the Federal Government.

In telling of all these accomplishments it is only fair to give credit also to Mr. Horace M. Albright, who, while he has been working in a less prominent capacity as Mr. Mather's secretary, has yet contributed a large share toward these successful results.

It is highly probable that the appropriation of over $300,000 asked for Yosemite improvements for the coming year will be granted by Congress, but there is little hope of securing the enlargement of the Sequoia National Park or the creation of the Grand Cañon National Park during this short session of Congress. W. E. C.

⁂

WELCOME NEWS CONCERNING OUR EDITOR-IN-CHIEF It is with profound pleasure that we announce the recent marriage of our worthy Editor-in-Chief, Dr. William F. Badè, to Elizabeth Marston, of San Diego. Both of these delightful people are so well known to most of the members of our club that they will join with us in rejoicing over this happy event.

This is Dr. Badè's sabbatical year, and he and his bride will not return to Berkeley until the latter part of the summer.

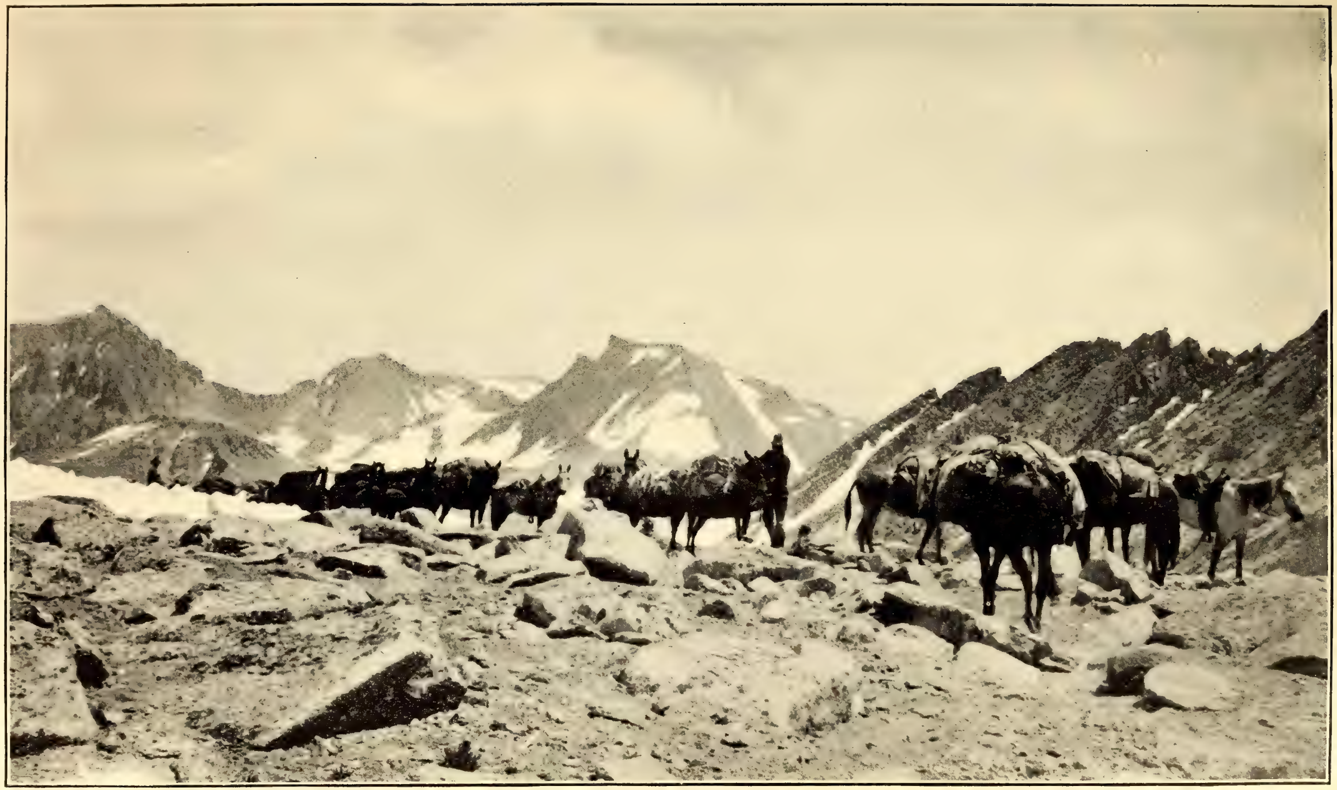
Dr. Badè wishes that full credit be given to the remaining members of the Editorial Board for the publication of the BULLETIN during his absence. W. E. C.

⁂

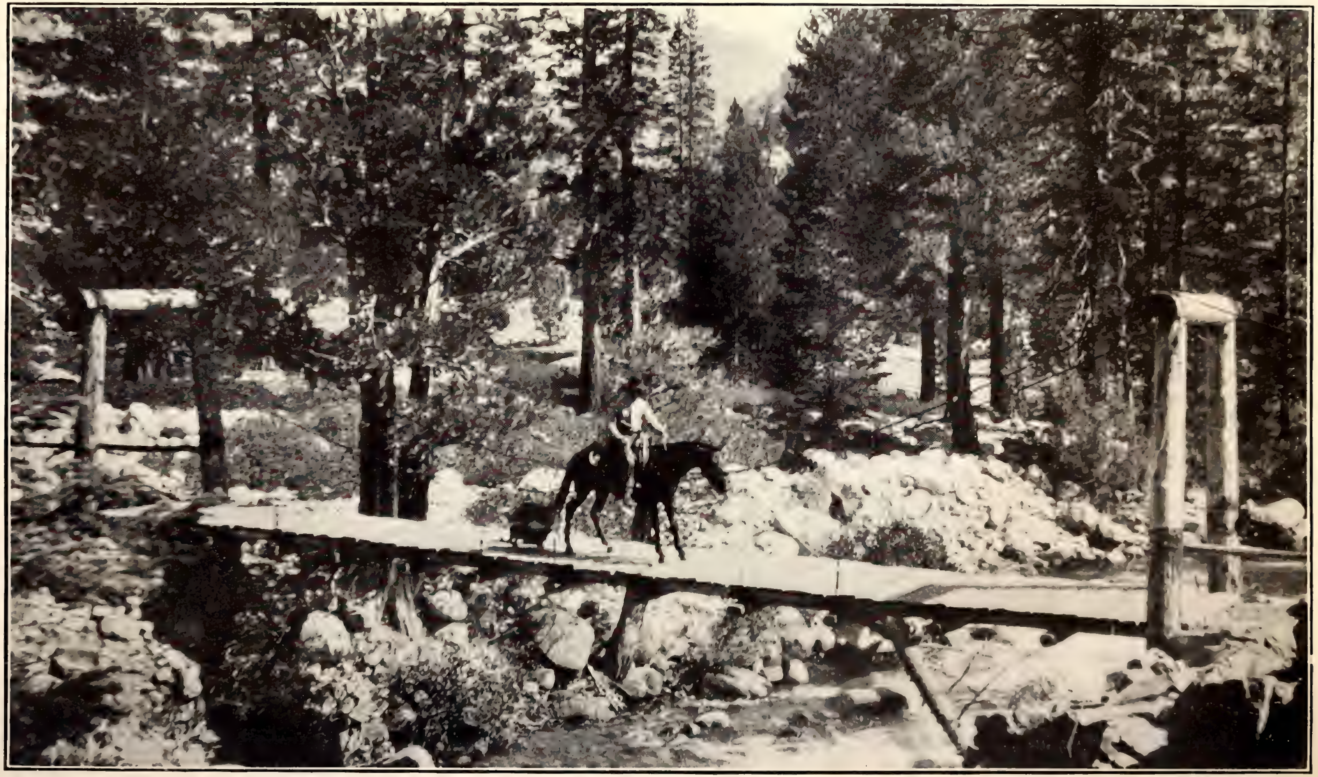
JOHN MUIR TRAIL Anyone who has traveled over the completed portions of the John Muir Trail can not fail to recognize the importance of this work in developing and making accessible the high Sierra, and also to become convinced that there could not be a more appropriate memorial to the life and work of John Muir. The club has prepared and presented to the present California legislature a bill appropriating $30,000 for the purpose of completing this trail and building and improving important lateral trails leading into it. The importance of the work which has been illustrated by the trail already built justifies asking for this amount, and if each member of the club will urge the legislators to appropriate this amount it will be done without question. We must express our great appreciation of the assistance which has been rendered by Mr. W. F. McClure, State Engineer, who has control of this fund, and also the able assistance of the officials of the Forest Service who have carried on the actual construction work. W. E. C.

∴

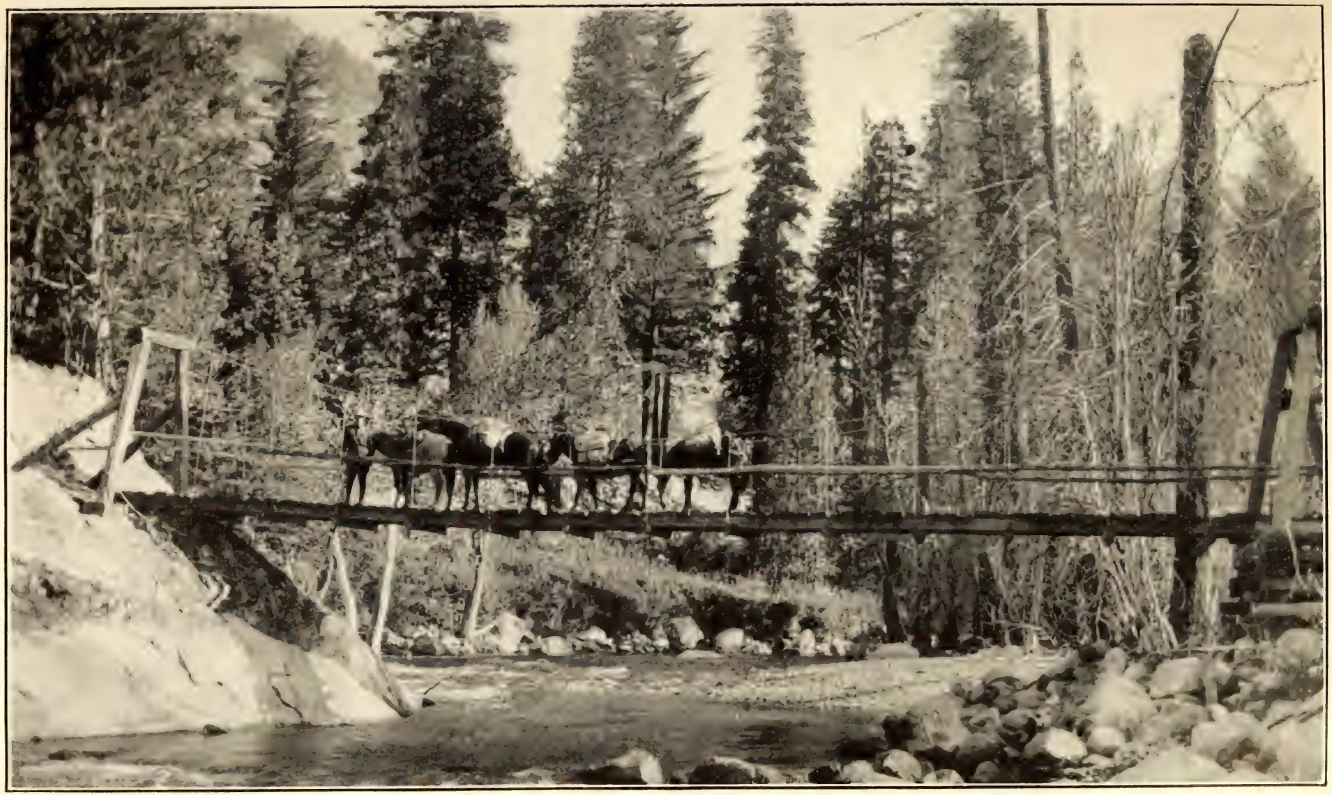
EASTERN PARKS VS. WESTERN In spite of all that has been written about the national parks, it was rather amusingly evident at the recent National Parks Conference in Washington that one question is not yet clear to the general public in the eastern states—why the west should be so disproportionately favored. One speaker even urged that the parks in the future be established nearer the centers of civilization, having never heard, apparently, of Mahomet's historic dilemma. More than one speaker, indeed, showed that a clearer definition is needed between a recreational park like the Interstate Palisades Park (an open space established primarily for health and recreational purposes for a particular center of population, where scenic attractions are the secondary consideration) and a national park, whose situation is wholly determined by its unusual natural beauty. The former is of interest only to an individual city or state, the latter to the nation and world at large. In the present stage of national park development only hopeless confusion could arise out of any attempt to place parks of such local interest under national control. M. R. P.



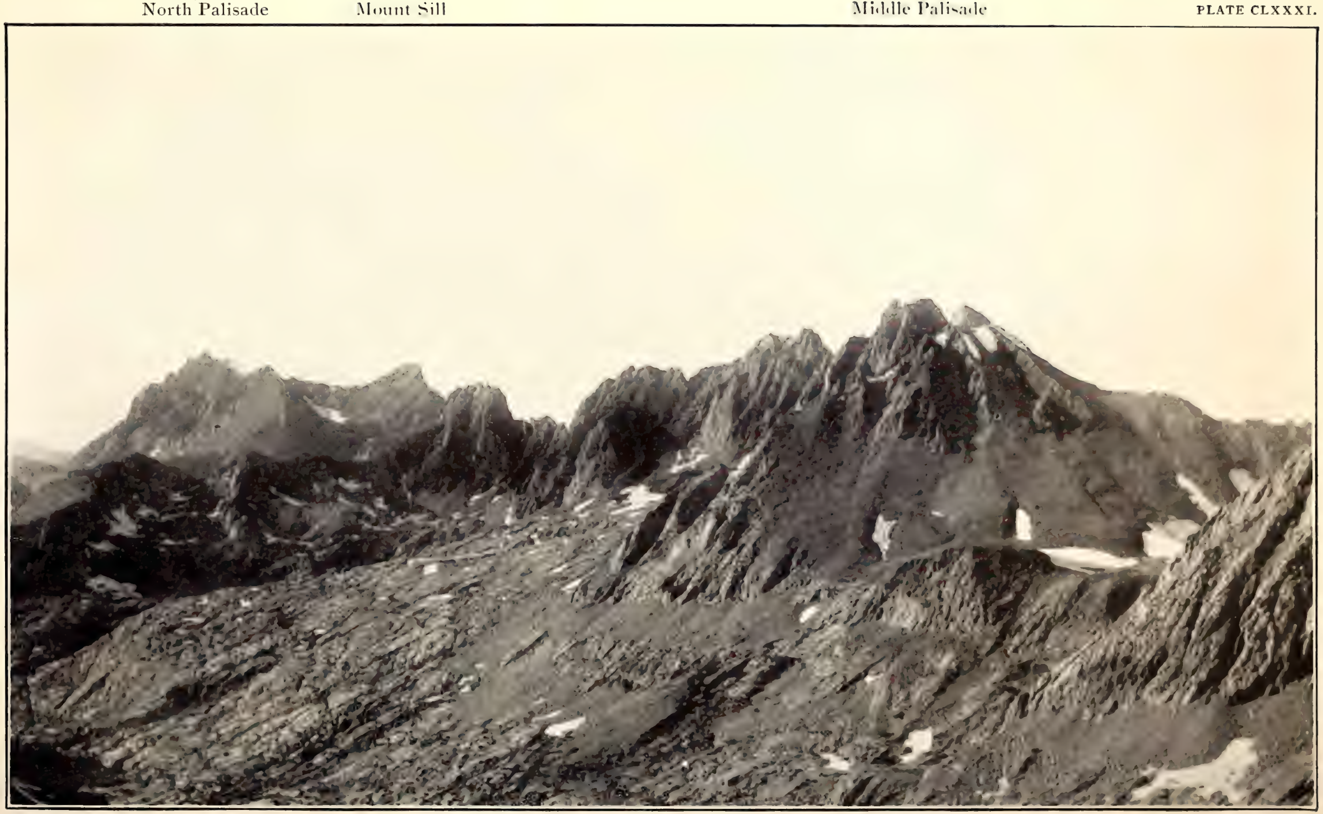
ON THE JOHN MUIR TRAIL
Mounts Williamson, Barnard, and Tyndall, from summit of Junction Pass
Photo by Marion Randall Parsons



ON THE JOHN MUIR TRAIL
Suspension Bridge over French Cañon Creek—Constructed 1915
Photo by Mrs. Cleaveland Forbes



SUSPENSION BRIDGE ACROSS MIDDLE FORK OF KINGS RIVER AT SIMPSON MEADOWS
Constructed during 1916 by U. S. Forest Service
Photo by District Ranger Roy Boothe


North Palisade
Mount Sill
Middle Palisade

THE PALISADE GROUP FROM THE SOUTH
Photo by District Ranger Roy Boothe

REPORTS OF COMMITTEES

REPORT ON LE CONTE MEMORIAL LODGE

The lodge was officially opened on the evening of May 15 by a program which consisted of music, recitations, and an address by Mr. Foote, of Los Angeles, who told of some experiences with General Villa in Mexico. About two hundred crowded into the lodge. The lodge was open until the first of October, four months and a half. For one month and a half after the expiration of the regular custodian's work the lodge was in charge of Mr. W. A. Bourne, a new member of the club.

The number of the people visiting the valley this year far exceeded that of any previous year. The registration therefore was very large. From May 15 to August 15 the registration was 4069; during Mr. Bourne's stay 514 were added. The total registration was 4583.

Several times during the summer groups of people gathered in the lodge and the custodian gave short addresses upon "Joseph Le Conte," "John Muir," and "The Work of the Sierra Club." Very great interest in the work of the club was constantly shown. Notices concerning the lodge were posted in all the camps. Mr. Curry frequently told his guests of the lodge; he also furnished, without charge, all the wood that was needed.

For the first time this summer books were loaned for use outside of the building. Several shelves were reserved and all others were loaned, a deposit being taken to cover the cost of the book. Not a single book was lost, and a great many visitors expressed their appreciation of this kindness through the club's treasury and by the gifts of friends.

There is great need for a new herbarium. Many visitors expressed disappointment that the collection of birds there last year had been removed. The photograph albums are worn out and must be replaced. Albums of the Tuolumne country and the Kings and Kern river cañons are especially desirable. Also a larger sign with more detailed information about the lodge should be placed down by the main road. Novels, and especially books of nature, that friends of the club wish to give to the library will always be greatly appreciated and widely used. There should be two good strong writing-tables placed in the lodge by next summer.

The sale of maps amounted to $5.50; the sale of BULLETINS amounted to $8.00; gift received from Mrs. Adams, Salt Lake City, $1.00. Total, $14.50.

FRED W. MORRISON, *Custodian*

J. N. LE CONTE, *Chairman,*
R. M. PRICE,
MARION RANDALL PARSONS,
Committee

RESULT OF ELECTION IN SOUTHERN CALIFORNIA SECTION

Executive Committee

(To serve two years commencing November 15, 1916)

Mr. Chas. J. Fox, Los Angeles	Chairman
Mr. Phil. S. Bernays, Los Angeles	Secretary
Mr. Benj. W. Fenton, Pasadena	Treasurer

Mr. H. E. Bailey, Los Angeles
Mrs. Henry Braun, Glendale
Mr. Homer P. Earle, South Pasadena
Mr. Ernest Dawson, Los Angeles
Mr. Everett S. Shepardson, Los Angeles*
Dr. Geo. A. White, Santa Barbara

* Died December, 1916.

⁂

REPORT OF THE TREASURER FOR THE YEAR ENDED MAY 6, 1916

To the Board of Directors of the Sierra Club:

The accounts of the Sierra Club for the year ended May 6, 1916, are set forth in the following schedules, which are respectfully submitted for your approval.

MARION RANDALL PARSONS,
Treasurer

RECEIPTS AND EXPENDITURES YEAR ENDED MAY 6, 1916

Receipts

Dues from members	$4,475.00	
Rent from sub-lease of room	180.00	
Advertisements in BULLETIN	345.50	
Sale of BULLETINS	41.46	
Sale of maps and pins	43.00	
Interest on bank accounts	34.33	
Sundry small receipts	2.06	
Total receipts		$5121.35

Expenditures

Rent of room—402 Mills Building	$ 720.00
Salary of assistant	720.00
Stationery and circulars	229.15
Postage	352.30
Telephone and telegraph	81.11
Office supplies	72.25
Library and photographs	33.10
Publishing 1916 BULLETIN	1,807.47
Delivering *Appalachia*	140.10
Le Conte Lodge	128.58

John Muir Trail	$ 249.36	
Southern California Section	250.00	
Out of Doors magazine	50.00	
Exhibit at P. P. I. E.	45.50	
Furniture and equipment	102.00	
Dues to other clubs	13.00	
Taxes	5.56	
Clerical assistance	15.45	
Sundry small expenses	25.68	
Total expenditures		$5,040.61
Excess of receipts over expenditures		$ 80.74
Cash on hand—May 1, 1915		1,955.81
Cash on hand—May 6, 1916		$2,036.55
Made up as follows:		
In office	$ 25.00	
First National Bank	1,461.53	
Savings Union Bank & Trust Co	343.19	
Security Savings Bank	206.83	
Total	$2,036.55	

Sierra Club Permanent Fund

Balance—May 1, 1915	$1,514.90	
Interest	60.02	
Balance—May 6, 1916, in Security Savings Bank		$1,574.92

Whymper Fund

Balance—May 1, 1915	$ 239.48	
Interest	9.66	
Balance—May 6, 1916, in Savings Union Bank & Trust Co		$ 249.14

⁂

REPORT OF 1916 OUTING

The standard of excellence of recent annual outings has been so high that each year the Outing Committee has been apprehensive that it would not be able to live up to its past record. However, the opinion was unanimously expressed, at the close of the 1916 outing into the Kern and Kings River regions, that the trip was the finest that the club had ever undertaken.

The party left the train at Springville and camped the first night near Smith & Wilson's summer resort in a beautiful pine forest. The next day the party crossed the divide above the Tule and entered the Kern River watershed, camping at Lloyd Meadow. The next day the party crossed the Little Kern and camped in Trout Meadow. Little Kern Lake was reached on the day following, where two days were spent. Camp was then moved to the mouth of the Big Arroyo, and on the day following to Moraine Lake and Chagoopa Plateau. Here a stay of nearly a week was made. The opinion formed on the previous trip of the club to this region was confirmed, and this was generally conceded to be one of the finest camping spots that the club has ever had in the mountains. The shelter of the thick forest about the lake and opportunity for swimming, as well as the many trips to near-by points of interest, all added to its attractiveness. Several knapsack parties visited Lost Cañon, climbed Sawtooth, crossed into Five-Lake Basin, and camped at the head of the Big Arroyo, crossing the divide into the Kern-Kaweah, and thence rejoined the main camp at Junction Meadow on the Kern River, the main party having in the interim moved camp to the latter point. Quite a few members climbed Milestone. Almost the entire party visited Crabtree Meadows at the base of Mount Whitney (14,502 feet), and 175 made the ascent, which is the largest number that has visited the summit in a single day. This probably sets a record for a mountain of this height. Mount Tyndall and Mount Williamson were also climbed by several members of the party.

The great feature of the trip was the safe passage of the entire party, including baggage and pack animals, over the recently completed section of the John Muir Trail. Heretofore it has been necessary in order to reach the Kings River Basin from the Kern River, or *vice versa,* to travel around by way of Giant Forest or cross the Sierra and drop down into Independence, making an arduous detour of several days. The party left its camp in Tyndall Meadow at an altitude of about 11,000 feet and crossed Shepard Pass, which is on the crest of the Sierra at the divide between Shepard and Tyndall creeks. Dropping down from Shepard Pass a little over 1000 feet, the trail turns northwesterly, following up the northerly branch of Shepard Creek, and again crosses the main crest of the Sierra at an altitude of about 13,300 feet at Junction Pass, this pass being between Junction Peak and Mount Keith. The pass itself is a broad level area partaking of the nature of a plateau, and the trail follows out to the north on a divide between two branches of Center Basin, and finally descends into Center Basin itself and thence on down Bubbs Creek to Vidette Meadows, where the club camped that night. While this made a rather long day, the entire party arrived safely in camp that night after one of the most thrilling experiences of any of the outings. To take a party of this size, with all its camping equipment, over a pass that exceeds 13,000 feet in altitude, is an accomplishment the club can well be proud of. Four days were spent at Vidette Meadows while members of the party knapsacked to Rae Lake and also to Mount Brewer and vicinity. Before crossing Kearsarge Pass a camp was made for a single night at Kearsarge Lakes underneath the Kearsarge Pinnacles, and this wonderful experience will long remain in the memory of members of the party. The next day Independence was reached, where the night was spent, and the members of the party returned to their respective destinations in Los Angeles and San Francisco by special train.

The music furnished by Signor and Madame de Grassi, Mr. Louis Newbauer, Miss Anna B. Ludlow, and Miss Mizpah Jackson, as well as that so generously contributed by many others, made the camp-fires of this outing more than ordinarily enjoyable. The club is also greatly indebted to one of its members, Mr. J. E. Eibeschutz, of Independence, who generously rendered assistance in many ways.

The outing planned for the summer of July, 1917, is one of the most ambitious that the club has ever contemplated. The plan of the trip, as previously announced in the preliminary circular, will be reversed. The party will start from Huntington Lake and travel by way of Hot Springs, Vermilion Valley, Blaney Meadows, and Evolution Basin on the South Fork of the San Joaquin, will cross Muir Pass over the recently constructed portion of the John Muir Trail, and will enter the headwaters of the Middle Fork of the Kings River. Camp will be made in this wonderful cañon in the vicinity of Grouse Valley, from which the wild and rugged Palisade country can easily be reached, and the party will then travel on down the newly constructed trail, which the club has assisted in building, to Simpson Meadows, then on to Tehipite Valley, and will return to the railroad by way of Shaver Lake. This trip will give an opportunity for visiting a magnificent region of the Sierra that has heretofore been known to but a few of the members of the club who have been pioneers. The recent trail-building has made this region sufficiently accessible so that the entire outing party will for the first time have the opportunity to enjoy its wonders this summer. Written application should be made at an early date.

WM. E. COLBY, *Chairman,*
J. N. LE CONTE,
CLAIR S. TAPPAAN,
Outing Committee

⁂

SECRETARY'S ANNUAL REPORT

MAY 1, 1915, TO MAY 6, 1916

To the Members of the Sierra Club:

The splendid progress made in national park affairs during the past year was continued under the able direction of Mr. Stephen T. Mather and the Superintendent of National Parks, Mr. Robert B. Marshall. Both Mr. Mather and Mr. Marshall have been for many years members of the Sierra Club, so that the club can take just pride in what they have accomplished. Work on the John Muir Trail is progressing, and before long the trail will be open to travel from Yosemite to Mount Whitney. This great work has already attracted nation-wide attention, and will do more to open up the high Sierra region than could be done in any other way. The membership of the club showed some material falling off during the past year, owing to financial conditions, and also to the fact that a larger number than usual was dropped for non-payment of dues. The total membership on May 1, 1916, is 1796. There were 187 new members added during the year, and 270 names were removed from the list by reason of death, resignation, and non-payment of dues, leaving a net loss of 83 for the year. We have good reason to believe that the coming year will bring about a marked increase in the membership. We trust that each member will assist in securing new members when the annual blanks are sent out for recommendations. Respectfully,

Wm. E. Colby,
Secretary

NOTES AND CORRESPONDENCE

Edited by William E. Colby

◆

The John Muir Trail

With the remainder of the appropriation of $10,000 made in 1915 by the State of California, construction work was prosecuted on the John Muir Trail throughout the field season of 1916.

Progress within the Sequoia National Forest is well shown by Supervisor Wynne's report to the State Engineer, much of which is here quoted:

REPORT ON JOHN MUIR TRAIL WORK FOR SEASON OF 1916

SEQUOIA NATIONAL FOREST

> The work for the season of 1916 was largely concentrated on the Sierra National Forest, using the remainder of the $10,000 unspent in 1915. A decision to handle the project in this way was reached at a conference in San Francisco early in the year, and this decision was afterwards approved by State Engineer Wilbur F. McClure. The work on the Sequoia National Forest was simply to be the completion of the work at Junction Pass and carrying the trail down Center Basin and as far toward Bullfrog Lake as funds would permit.
>
> The Sierra Club used this route in its outing, and, in addition, there is much public interest in Junction Pass and numerous parties made the crossing during the summer. The pass has an elevation of 13,400 feet, being one of the highest on a main-traveled route in the Sierra. Several high peaks can be readily reached from it, notably Mount Keith and Junction Peak. From the Shepard-Tyndall Pass, Mount Williamson is but a moderately hard trip. It is only 117 feet lower than Mount Whitney, but its ascent requires more skillful mountaineering.
>
> The work for 1915 ended about fifty feet beyond Junction Pass, on the Center Basin side, in a very bad mass of broken rock. Knowing that travel would be very heavy, it was planned to start work during the early part of June. Extraordinarily heavy snow made it impossible even to get into the area until June 27, and real crew work could not be done before July 4. Considerable trouble on the early work was occasioned by snow-blindness, and men were very hard to get and keep. Great credit is due to Thomas Adamson, the foreman, for continuing the work, even when single-handed. A little later conditions were better.
>
> The trail is now completed in Class-A shape as far as Center Basin. It will take two or three seasons of settling in the talus and slides before the tread is permanently fixed, and money should be allotted for this purpose each year.
>
> Costs were as follows:

Wages	$395.00
Subsistence supplies	191.26
Packing	8.00
Total	$594.26

In addition, $112 was expended by the Forest Service in salary and expenses on the Muir Trail project, chiefly in supervision and reconnaissance. The total length of completed trail is 3⅛ miles. In addition to outlay on the new trail, $54 was expended in shoveling snow and fixing up parts of last year's work that had been damaged by slides.

While the work was in both Ranger Slinkard's and Ranger Clingan's districts, it was considered admissible to concentrate the small amount of money available. Hence, this year's work was all under Ranger Slinkard, with Thomas Adamson, of Lone Pine, as foreman on the ground. District rangers are busy men, and both Clingan and Slinkard deserve great credit for the painstaking work on estimates for new construction. Ranger Slinkard should also be credited for keeping the work moving this summer in order to get the route open early, in spite of the excessive snowfall.

The general public has gained the erroneous idea that the Muir Trail is practically completed. This has caused many of them to comment very adversely on the trail, as many of the old portions of the route are little more than ways through. Money so far appropriated has simply been enough to build a few short pieces of the whole length. If the State of California can be prevailed upon to appropriate sufficient funds to really complete the entire project, the result will be a high-country line of travel without a parallel.

Several lateral trails will be needed to make Muir Trail accessible from side points. Owens Valley is particularly in favor with southern California people, and good laterals should be built from Lone Pine, Independence, and Bishop. There are trails from these points now, constructed by the Forest Service and cattlemen. Comparatively small amounts would place them in Class-A condition.

Good connecting links to the south and west will no doubt be constructed as funds are made available. Lateral trails from Mineral King and the Giant Forest should also be extended to the John Muir Trail. Possibly some of the roads to be constructed in the National Forests under the Taylor Bill will make the John Muir Trail more accessible.

Since the Muir Trail on the Sequoia National Forest is mainly a project yet to be completed, it was decided to spend considerable time in laying out the route and securing careful estimates of the cost. Following is a summary of the entire distance and costs of the various divisions as shown on the accompanying map:

Mount Whitney	Division....	7.5	miles..........	$1,875
Sand Meadow	“	5.0	“	875
Tyndall Creek	“	6.0	“	1,140
Bubbs Creek	“	7.0	“	1,050
Charlotte Creek	“	2.5	“	750
Glenn Pass	“	3.25	“	1,500
Rae Lake	“	7.0	“	950
Woods Creek	“	6.0	“	1,000
Pinchot Pass	“	3.5	“	1,325
Taboose	“	4.5	“	800
Upper Basin	“	3.5	“	950
Total..................		55.75	miles	$12,215

> These figures are the result of careful estimates by Rangers Clingan and Slinkard. I have also been over practically the entire route and agree that the figures are about right, as judged by our past experience in similar country.
>
> If in accordance with the desires of the State of California, I would recommend that the above amounts be expended on this project whenever funds are made available. I attach herewith topographic sheets showing the proposed route as outlined.
>
> Respectfully submitted,
> S. W. WYNNE,
> Forest Supervisor
>
> Hot Springs, California,
> October 9, 1916.

On the Sierra National Forest the trail through the cañon of the Middle Fork of Kings River was completed from the mouth of Cartridge Creek to the mouth of Palisade Creek, a very difficult piece of construction. From the mouth of Palisade Creek it was continued up the Middle Fork to a point some two miles above Little Pete Meadow and about three miles from Muir Pass, where the trail will cross the Goddard Divide.

This point was reached from the north in 1915, when the John Muir Trail was completed from the South Fork of San Joaquin River up Evolution Creek to Muir Pass; thus, only the length of three miles south from the pass to the point where work was discontinued on the Kings River side at the end of the present season remains to be completed. In order to accommodate the Sierra Club's outing party, which will cross the Goddard Divide early in the field season of 1917, Supervisor M. A. Benedict succeeded in having a preliminary trail constructed across the uncompleted three-mile stretch before weather conditions prevented further work.

The following information concerning work within the Sierra National Forest is given by Supervisor Benedict:

> I am enclosing a map showing the amount of work completed in 1916, and also showing the preliminary trail from the end of the completed work toward Muir Pass for the accommodation of the Sierra Club's outing party next July. At least three miles of this preliminary trail will be covered by snow when the Sierra Club party goes through, and I anticipate no trouble over the remainder of the trail to Barrier Rock, where the completed trail ends.
>
> The work was classified into three different types:
>
> Type A—Solid rock, from 10 per cent to 45 per cent slope.
>
> Type B—Talus.
>
> Type C—General type, including dry and wet meadows, talus covered with earth, flat solid rock, gravel and dirt slopes.
>
> Following is a tabulation of the work done under each type, and its cost:

Type	Feet	Man Days	Cost			Total, with Prorated Moving and Packing	Cost per Mile
			Labor	Powder	Subsistence		
A	810	145	$ 308.80	$ 90.00	$269.70	$ 837.54	$5,438.00
B	3,850	90	193.20	25.00	167.40	496.14	686.00
C	40,260	211	448.90	30.00	392.46	1,140.20	158.00
Preliminary trail.......	32,680	80	169.80	10.00	148.80	446.25	70.00
Cost, completed trail	44,920	446	950.90	145.00	829.56	2,473.81	264.00
Total	77,600	526	$1,120.70	$155.00	$978.36	$2,920.06	$211.00
Credits in Supplies and Equipment left over						400.00	
Total expended ..						$3,320.06	

Packing of equipment and supplies, prorated over work, $666.

8.5 miles, at $264.00 per mile.
6.2 miles, at 70.00 per mile.
14.7 miles, total.

Subsistence cost $1.68 per day per man, including cook, food, freight, and packing.

Our expense record shows—

State allotment	$4,900.00
Expended	3,320.06
Balance............................	$1,579.94

Supervision and labor, Forest Service, approximately $200.

Credits include—

Powder	$250.00
Steel and tools	30.00
Grub	100.00
Cook outfit	20.00
Total................................	$400.00

With the balance of a little over $1500 on hand, and with powder, tools, and camp equipment sufficient to run a crew almost the entire season, it is planned to start a twelve-man crew in Evolution Creek on July 1, 1917. This amount will run the crew at least a month, when it is hoped that a new appropriation by the state will be available.

I am very much interested in getting suggestions for a distinctive marker for this trail. Most of the country will not be through any timber where blazing can be done. My suggestion is the use of a three-foot length of asphaltum-dipped, three-quarter-inch iron

> pipe, with a white disc six inches in diameter, with a black letter "M" stenciled on it; this stencil to be put on both sides of the disc. This marker can be placed at intervals not to exceed one hundred yards, and will make a permanent and distinctive guide. Of course, these will be supplemented by "ducks"; but "ducks" become destroyed by the elements and loose pack stock, and I believe some distinctive marker should be used, whether it is the one I have suggested or a better one. This marker, of course, will be supplemented by a large number of descriptive ones.

The work accomplished with the single appropriation of $10,000 which was made by the state legislature in 1915, has exceeded all expectations. With it a passable route along the entire crest of the High Sierra has been opened and some of the finest scenery in the United States has thus been made accessible. However, this passable route must not be understood to be a finished trail, for, indeed, much of it is only over the trails which already existed, and these without repairs or rebuilding of any kind. Some of this route which has been made passable is not even over the official route of the John Muir Trail. From the mouth of Palisade Creek the trail is yet to be constructed up Palisade Creek to the South Fork of Kings River and down the latter, via Woods Creek, Rae Lake, and Glenn Pass, to Bullfrog Lake. This section has been carefully explored, located, and estimated. Its construction now only awaits the necessary funds. Appropriations should be made by the state for continuing the work until the entire trail from Yosemite to Mount Whitney is completely constructed.

In addition to the John Muir Trail, lateral trails at frequent intervals are very desirable. With these the main trail would be easily accessible, and stretches of it could be visited by those who cannot afford the time to travel throughout its entire length.

∴

TEHIPITE-SIMPSON MEADOWS TRAIL

A good trail through the cañon of the Middle Fork of Kings River from Tehipite Valley to Simpson Meadows has long been needed, but funds for improving the existing trail have heretofore not been available. The completion of the trail through the upper portion of the Middle Fork Cañon from Simpson Meadows to Palisade Creek and of the John Muir Trail from Palisade Creek across the Goddard Divide to the South Fork of San Joaquin River, during the past season, made this construction more necessary than ever before, as a trip which will no doubt be very popular will be through Tehipite Valley, the Middle Fork Cañon via Simpson Meadows, over Muir Pass, down Evolution Creek, and out through the basin of the San Joaquin River, or the reverse. In fact, it is this very route which will be followed by the 1917 outing of the Sierra Club.

Before the opening of the field season of 1916 the Directors of the Sierra Club brought the urgent need of rebuilding this trail to the attention of Chief Forester Henry S. Graves. There were also similar demands from individuals. Mr. Graves fully realized the need of this construction, and, although the funds at his disposal for such work are very limited, he made a special allotment of $1200, to which the Board of Supervisors of Fresno County added $400. With the money thus made available, a trail crew, under Supervisor M. A. Benedict, of the Sierra National Forest, repaired the existing trail on the north side of the river from Tehipite Valley to the ford, constructed an entirely new trail from the ford to Simpson Meadows, and at the latter point constructed a substantial suspension bridge across the Middle Fork of Kings River. The ford, which was formerly the only means of crossing the river, and which was at certain seasons dangerous, is now eliminated. The new location, entirely on the north side of the river, also avoids some rough trail across the mouths of several creeks which enter from the south wall of the cañon. This piece of trail work is certainly a welcome addition to the system of trails which is now being rapidly constructed to make the wonderful scenery of the basins of the Middle Fork of Kings River and of the South Fork of San Joaquin River accessible.

⁂

ESTIMATE OF COST OF NEW WORK TO COMPLETE A TRAIL FROM GIANT FOREST TO MORAINE LAKE

October 4, 1916.

District Forester:

Dear Sir: Referring to your letter of August 12 and Mr. Huber's letter of August 11:

We looked over the prospective route from Bearpaw Meadow to Moraine Lake and found that this is a practicable route, except that the trail will have to swing onto the divide south of Deer Creek, then follow up Bear Creek. Following is Ranger Redstone's report on the piece from Bearpaw Meadow to the head of Big Arroyo:

> I found that the route down Deer Creek is impractical, owing to the precipitous drop of the narrow rocky creek bed. However. I found a very good route a few miles south of Deer Creek over the ridge between Deer Creek and North Fork or Bear Creek. This route would start at Bear Creek, cross the main Kaweah River, and ascend on a fifteen-per-cent grade around the ridge and up Bear Creek, crossing the divide near the head of Deer Creek and connecting with the trail up the Big Arroyo in the Nine Lakes basin. The country is exceedingly rough and a good trail will be costly. Two-thirds of the trail over the lower end will be fairly easy construction, composed of earth, heavily brush-covered, and of loose rock. The upper third will be very expensive, as it runs into heavy blasting and wall-building, especially near the crossing of the divide.

From the head of the Big Arroyo to Moraine Lake it is a fairly simple proposition, entailing no heavy construction, except about one and one-half miles in getting from the Arroyo to the plateau.

The appended sheet shows the estimated cost of the project.

Very truly yours,
S. W. Wynne,
Forest Supervisor

ESTIMATE ON COST OF CONSTRUCTING A TRAIL FROM BEARPAW MEADOW TO BIG ARROYO

Two miles earth trail, covered with heavy brush and loose rock, some wall building and blasting, at $60 per mile	$120.00	
Four miles earth trail, covered with brush and loose rock, at $40 per mile	160.00	
Three miles rock work, walling up, blasting, at $200 per mile	600.00	
One mile heavy blasting and rock walls at $500	500.00	
Total cost for the ten miles		$1,380.00

TRAIL—HEAD OF BIG ARROYO TO MORAINE LAKE

LENGTH, ELEVEN MILES

Five and one-half miles clearing loose rock and some grading, at $40	$220.00	
One and one-half miles, in slide-rock on grade, at $180.	270.00	
Four miles, clearing loose rock and marking, at $30	120.00	
		610.00
Total		$1,990.00

⁂

Climbing Mount Clark from Merced Lake

Of all the splendid mountain peaks in the upper regions of Yosemite National Park, none can surpass Mount Clark in beauty of form. From whatever point it may be seen it is always the most striking feature of the landscape. From Glacier Point it looks like an isolated section of some huge palisade; from the Merced Lake trail it is seen as a thin sharp peak rising from slender buttresses; while from the Vogelsang Pass trail it appears as a fine pyramid. In any one of its many aspects it is an inspiring sight to the mountaineer.

Yet, notwithstanding its attractiveness and its nearness to Yosemite Valley, Mount Clark has not been ascended as often as one would suppose. The first ascent is a matter of classic record. Those who are familiar with Clarence King's *Mountaineering in the Sierra Nevada* will remember the thrilling account of the final leap that brought him and his companion, Gardner, within reach of the summit. Like many a pioneer effort, this first attempt was a much more perilous adventure than subsequent ascents have proved. In 1866 the region around Mount Clark, or The Obelisk, as it was then usually called, was comparatively unknown, and King and Gardner had little opportunity to make careful plans for their route. The south side of the mountain was the most accessible, and from that direction animals could be brought to within a few miles of the base. They undoubtedly made a bad choice of routes for the final part of their ascent, as subsequent climbers have not encountered the extreme difficulties reported by King. Although most of the ascents have been made from the south side, a few climbers have reached the summit from the north. With the opening up of the Merced Lake region through the improvement of trails and the establishment of a public camp, the route from this side should become more popular. The climb can be made in a few hours from Merced Lake, and, if the way be carefully chosen, it can be made without danger or difficulty.

On the morning of July 4, 1916, I set out from the camp that had just been opened by the Desmond Park Service Company at Merced Lake, and crossing the river picked my way along the ledges of the opposite cliff. In a few minutes I could look down upon the sparkling waters of Merced Lake. After a climb of about a thousand feet I entered the forested tableland that flanks Mount Clark on the north. I had no intention of climbing the mountain that day, but only to reconnoiter and plan a route for some later day. Before me now lay the choice of following the basin toward the main snow-field or of mounting the ridge to the west. I chose the latter, and in a little while was on the summit of the ridge. The panorama was splendid; westward lay Yosemite Valley, reposing in the midst of the dark-forested upland; to the north and east the bright snow-fields of the upper Merced expanded to the Sierra crest; southward the ridge ran up to a sharp rocky point toward the main summit. Making my way along the ridge, I reached the rocky point in the course of an hour and looked down on the other side upon a snowy cirque that cut deep into the side of the mountain. Beyond the cirque towered the peak. It was a splendid sight; well worth a day's journey in itself.

The peak seemed very near, and I began to wonder if it were not possible to actually make the ascent this very day. The more I thought of it the more enthusiastic I became, and I looked eagerly for the most promising route. It seemed to be an easy matter to reach the main snow-field by descending a little way to the ridge which lay between it and the deep cirque. The snow-field must be crossed and the rocks beyond attained at as high a point as possible. There would remain some two or three hundred feet of rock-climbing. If the snow was not too steep and the rock-climbing too dangerous, the goal could be attained.

In a few minutes I was on the snow and found it softer and more deeply pitted than I had expected. While this made walking difficult it also made it safe, and I was able to mount almost to the very head of the field before being forced to the rocks. I had chosen to cross the snow-field to the southeasterly side, intending to make the final climb along the left-hand sky-line. On reaching the rocks, however, this route looked very difficult for a man alone, so I began to prospect for a safer way. I had fully made up my mind to turn back if absolute safety was not assured. After a little investigation I found that there were several fairly wide ledges running at a slight angle across the face of the tower. I followed these along to the right, mounting occasionally from one to another until I was well around toward the westerly side of the peak. Mindful of King's adventure, I half expected to encounter some impossible stretch or to find myself in some *cul-de-sac* and perhaps be denied the summit when within a few feet of it. I knew that I was getting very near the top, but could not tell as yet just where it was. There might be a split summit, and I might be on the wrong side of the split. I wedged myself in between two large rocks and crawled up a little higher. Then I looked up, and there, only ten feet away, stood the cairn of rocks that marked the summit. In another moment I was on top.

The isolated position of Mount Clark gives it a commanding range over the whole Merced basin. Its precipitous sides make the glimpses of snow-fields, lakes, and forests far below most impressive. Yosemite Valley, lying deep in shadow, has an air of mystery, enhanced by the gleam of silver where the waters of Yosemite Creek pour silently into the dark chasm.

For an hour I enjoyed the superb prospect and then reluctantly prepared to descend. I returned by the same route as far as the snow-field, and then, abandoning my morning footsteps, followed the water-courses from the melting snow until I came to the timber-lands. Here I came upon the vestiges of a trail that appears on the maps as the Mount Clark Trail. I found it badly out of repair and almost obliterated in some places. It is very steep, and in its present condition not at all suited to animals. It reaches the river halfway between Lake Washburn and Merced Lake. From that point on it is plain walking into camp. I reached camp at five o'clock, having been gone about eight hours. The trip could be made very easily in less time by one familiar with the way.

Before leaving Merced Lake I climbed another mountain that should enjoy greater popularity. Mount Florence (12,507 feet) commands in some ways a finer view than Mount Clark. It is close to such spectacular peaks as Lyell, McClure, Rodgers, Electra, and Foerster, while just beyond are Banner, Ritter, and The Minarets. The view is similar to that from Lyell, though much more comprehensive, and the ascent is comparatively easy. The trip can be made in about ten hours from Merced Lake. The most direct route is to follow the McClure Fork trail up from the Merced until the Isberg Pass trail branches off. The Isberg Pass trail leads across a broad plateau that lies between Mount Florence and Lake Washburn. By this route the way is made easy for a considerable distance toward the mountain. Probably the best place to leave the trail is when it crosses a small stream that flows into Lake Washburn from the northeast. This stream comes from the snow-fields of Mount Florence and may be followed to its sources. From the snow-fields the way can hardly be mistaken. It is just a question of scrambling up over shale and great rough weather-beaten rocks. There is a false summit a few hundred feet from the real summit, but the traverse between them is easy. The north side of the mountain is a tremendous precipice, dropping to a vast snowy amphitheater that stretches toward the base of McClure.

FRANCIS PELOUBET FARQUHAR

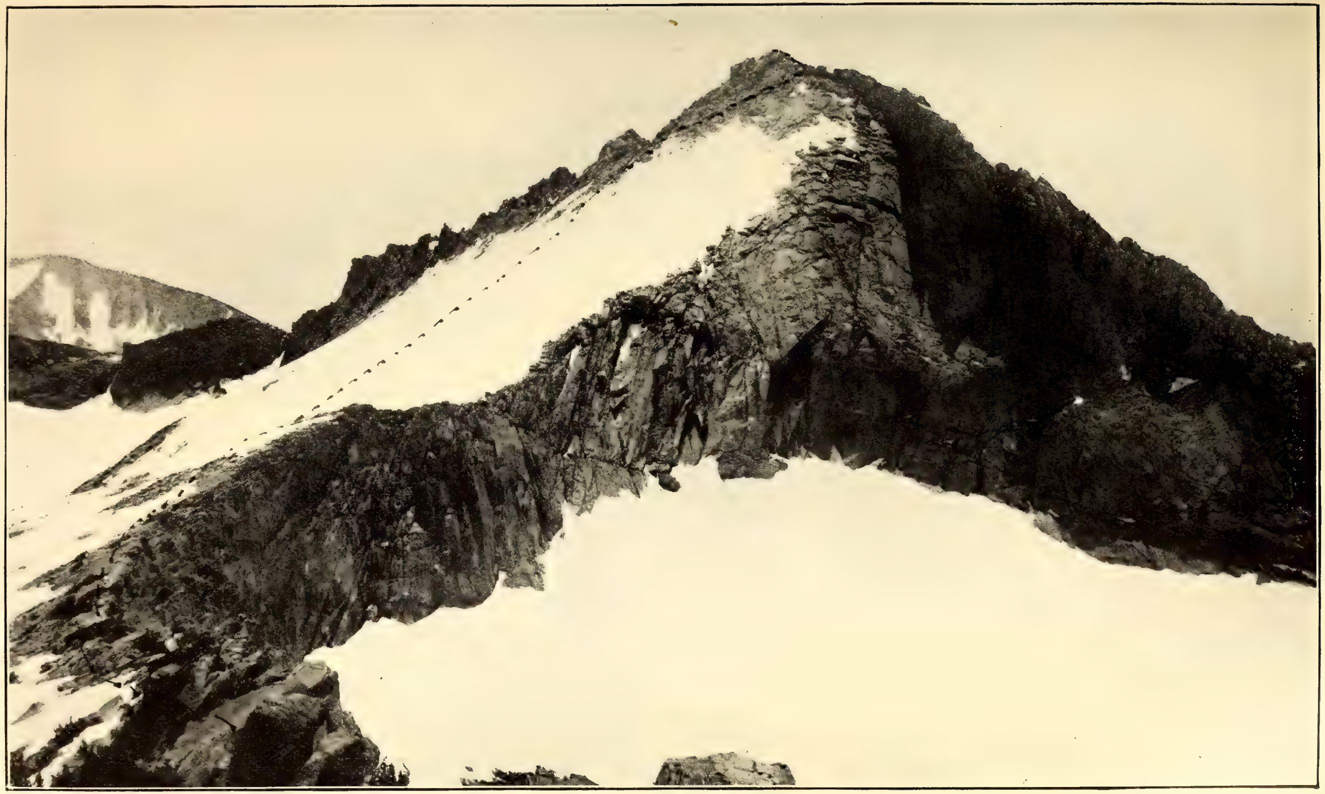
⁂

FIRST ASCENT OF SOUTH GUARD (12,964 FEET)

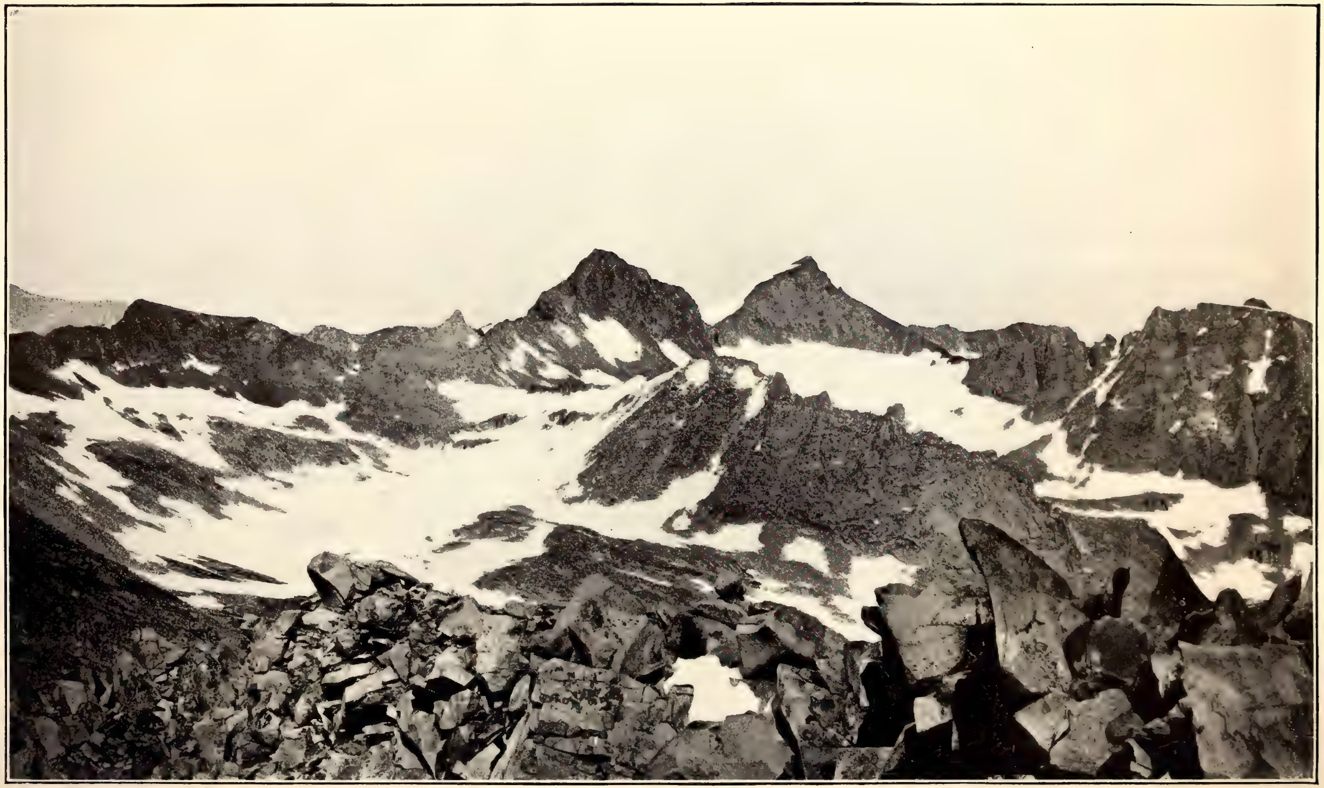
On July 26, 1916, after leaving in camp at East Lake those of our fellow-knapsackers who were less strenuously inclined, or who were more ardent fishermen, Miss Florence Burrell, Miss Inezetta Holt, Mr. James Rennie, and the writer made the ascent of South Guard by following Ousel Creek to the unbroken snow-field of its upper basin, where, after finding the snow too solidly frozen to afford secure footing on the steep slopes (we had no ice-ax), we chose the rocky knife-edge extending to the summit from the northeast. This necessitated a long and arduous climb. The knife-edge is very thin, and is composed, for the most part, of very loose rock. Added to the interest of the climb was the uncertainty of whether this route would lead to the summit or whether a precipice would bar all further progress, an uncertainty which was not removed until the summit was actually reached about 12:30 P. M.

We found no evidence of any previous ascent of the peak. After building a small cairn of rocks on the larger block which constitutes the summit, we placed a record in a sardine-can, ate that part of our lunches which was left after the many stops on the long ascent, took a few moments with binoculars to watch a Sierra Club party which by now was descending Mount Brewer, and then began the descent.

As our party had planned to move camp from East Lake to Vidette Meadows, an additional eight-mile walk must be added to the return. To descend by the same knife-edge which we had utilized in the ascent would necessitate several hours of very careful and slow climbing. Surely this plan would permit darkness to overtake us long before reaching camp at Vidette Meadows. After a brief conference with Mr. Rennie, it was decided to try to find a place where we could cross the north face of the rocky knife-edge and descend to the snow, which we hoped would be softer by this time than we had found it in the early morning, and would afford a route for descending more rapidly. While the rest were crossing the first ledges of the north face more slowly, Mr. Rennie went ahead scouting and soon located a possible route. In following we crossed several narrow ledges and started some miniature avalanches in



MOUNT CLARK (11,506 FEET)
Showing route across the snow-field and to the summit
Photo by Francis P. Farquhar



MOUNT McCLURE AND MOUNT LYELL, FROM SUMMIT OF FLORENCE
Photo by Francis P. Farquhar

the loose rock, but finally all safely reached the rock directly above the edge of the snow-field.

The descent to the snow offered some difficulties, especially as that part of the snow-field directly under the cliff had been shaded throughout the day, was still frozen very hard, and was at a dangerous slope leading directly to some ugly rocks. With some assistance, all hands were finally safely on the snow-field beyond the point where a slide would mean striking rocks below. One of our party escaped a very uncomfortable slide from the spot where we first reached the icy snow only by the precaution which our pathfinder had taken to first dig very large footholds and to brace himself securely in these. Once at the point where snow-sliding was safe, rapid progress was made, both by voluntary and involuntary slides. At East Lake we shouldered our packs and finished an interesting day by tramping the remaining eight miles to Vidette Meadows.

Walter L. Huber

⁂

An Ascent of Tunnabora Peak

On July 22, 1916, Mr. James Rennie and Mr. Walter L. Huber made the ascent of Tunnabora Peak (13,593 feet) from the Sierra Club's camp in the upper portion of Tyndall Creek Basin. The peak was reached by following the south branch of the East Fork of the Kern River to its head, thus reaching the south side of the peak which slopes to Tulainyo Lake. Although all other sides of the peak are very precipitous, the ascent from the south offers no difficulties after its inaccessibility has been overcome. The records of the Sierra Club indicated that no previous ascent of this peak had been made, but a very rusty tomato-can was discovered at the summit, and by subsequent correspondence it has been learned that Mr. George R. Davis, of the U. S. Geological Survey, made the ascent in August, 1905.

Tulainyo Lake, at the foot of its south slope, has a diameter of approximately half a mile and is at an elevation of 12,865 feet. This lake is in a rocky basin on the very crest of the Sierra. A sharp ridge of the main crest passes around it on the east and a less rugged ridge passes along its western side. It has no apparent outlet on either side. Its setting is unique among lakes of the High Sierra.

⁂

Mazama Activities for the Past Year

In addition to their outdoor activities, the Mazama Club has established an educational course, begun last winter and continued during this one. This consists of a lecture by some competent person each Thursday evening on one of the following subjects, taken in rotation: Botany, Geology, Ornithology, and Local History. The lectures are usually illustrated with lantern-slides.

The headquarters and club-rooms of the Mazamas in the Northwestern Bank building have now been maintained for two years. A single room with floor space of over 600 square feet is made to serve the various needs. This room, besides a fine collection of photo enlargements and other pictures of typical mountain scenery on the walls, is furnished as a club-room for both men and women.

The Mazamas' annual outing in August was taken to the Three Sisters group, a trio of peaks lying about seventy miles easterly from Eugene, Oregon, forming the summit of the Cascade Range. The attendance was the largest in recent years, the total reaching about 120, though not all of this number were in camp for the full two weeks. The climb of the three peaks and the explorations on attractive side-trips served to fully occupy the time. An unusual feature was a snowfall of several inches on the night of August 16th.

The third annual short outing to Mount Hood, covering the Fourth of July, was taken as usual, and two outings to the coast were taken during the season, as has been the case for several years past.

Death has made unusual inroads on the Mazama membership during the year, and several of our valued workers have been taken. Among these the most prominent was former President Prouty, whose achievements in mountain-climbing are known in the Pacific Northwest, and in Canada as well, and whose loss is greatly deplored.

William P. Hardesty

⁂

The Mountaineers

During the past year The Mountaineers have conducted the customary series of local walks and short outings in the Cascades. Snoqualmie Lodge, built by the club in 1914, has become a favorite resort, offering a convenient base for climbing expeditions or the enjoyment of winter sports in season, particularly snow-shoeing and skiing. In the winter of 1915-16, remarkable for deep snows, the lodge was used by parties who were obliged to enter through a window in the gable, the only exposed corner.

The club has purchased seventy-four acres near Chico, in Kitsap County, one of the few regions in Washington where *Rhododendron californicum* grows abundantly. There is danger eventually of extermination because of wanton picking and the exportation of entire plants. The new Kitsap Lodge property will protect one of the most beautiful parts of this rhododendron land.

The annual outing of The Mountaineers was held August 5-27, near Mount Baker and Mount Shuksan, in the wildest section of the Cascades. Three different camps were made, three days at Twin Lakes, four at Hannegan Pass, and ten at Austin Pass. From the latter camp knapsack trips were made for the ascent of Mount Baker (10,750 feet) and Mount Shuksan (9038 feet). While not a very high peak, Mount

Shuksan is particularly difficult of ascent. Its steep sides are covered with sharp pinnacles, while the mountain itself is nearly inaccessible on account of deep gorges. Even when the lower portions have been conquered, the summit, a rock pinnacle of some 600 feet rising out of the snow-field, can apparently be scaled in but one place. The party that climbed it this year numbered twenty-eight. Thirty scaled Mount Baker, an all-snow climb over very steep and deeply crevassed slopes. On both mountains was left one of the bronze record tubes used by The Mountaineers. These have now been placed for general use on fourteen peaks in Washington.

WINONA BAILEY

Something over a year ago Mr. George E. Wright, vice-president of the Seattle Mountaineers, succeeded in interesting Stephen T. Mather, assistant to the Secretary of the Interior, in the erection of a shelter hut at Camp Muir on Mount Rainier. The movement had the support of Superintendent Reaburn of Mount Rainier National Park, and as a result $700 was set aside by the Government for the work. The hut has now been completed, following the plans drawn by Carl F. Gould, a member of The Mountaineers.

The *Tacoma News* of September 26 prints the following statement regarding the construction of the shelter:

> The house was built under the direction of Eugene Frank, who, with Fred Verville and Claude Tice, spent seventeen days and nights on the mountain, their experiences uniting the extremes in weather. Now they were almost carried away by arctic winds; then they were tanned to an Indian copper by an equatorial sun. They lived in a tent, pegged and weighted to the volcanic ash, and to their surprise they managed to retain this shelter, though the wind whipped it angrily. They could cook but little on their oil-stoves at that altitude.
>
> Seven barrels of lime and six barrels of cement were carried to Camp Muir, a little at a time, on the backs of burros. Sand was found on the camp-site—not very good sand, as it is mixed with volcanic ash, but Frank believes the cement that was made of it will stand for many a day. The house is 8 by 20 feet in size, and 7½ feet high inside. Its walls are three feet in thickness. Two by six beams sustain the roof, which is sheeted with timber and covered with tar paper, well nailed, and weighted down with stones. Supt. Reaburn set aside $700 for the work, but Frank completed it at a cost of $555. Each man was paid double wages, and they certainly earned them.
>
> Bunks for twelve persons will be built in the house. Blankets, oil-stoves, and food will be placed there. And the house is to have a telephone. Supt. Reaburn proposes to carry the wire to the camp early next season. Telephone service already covers the important points on the mountain. The line to Camp Muir will

be run in insulated coverings over the snow-fields and through iron pipe secured to the rocks.

∴

BUREAU OF ASSOCIATED MOUNTAINEERING CLUBS OF NORTH AMERICA

During the summer of 1915, I visited the mountaineering clubs and geographical societies of the country and suggested the formation of an association for the furtherance of common aims, and for the establishment of headquarters in New York where mountaineering information might be collected and made available. The plan was outlined as follows:

It was proposed to form an association of clubs and societies, each of which shall co-operate through its secretary and transact its business by correspondence with the general secretary. Each club shall send its printed matter, which will be added to the collection of mountaineering literature established in the New York Public Library. An annual bulletin of information on the membership, officers, and activities of the leading organizations shall be issued. The secretary of each club will notify the general secretary of the movements of local members who have interesting slides, and who can address the members of the association at such times as they may be in different parts of the country.

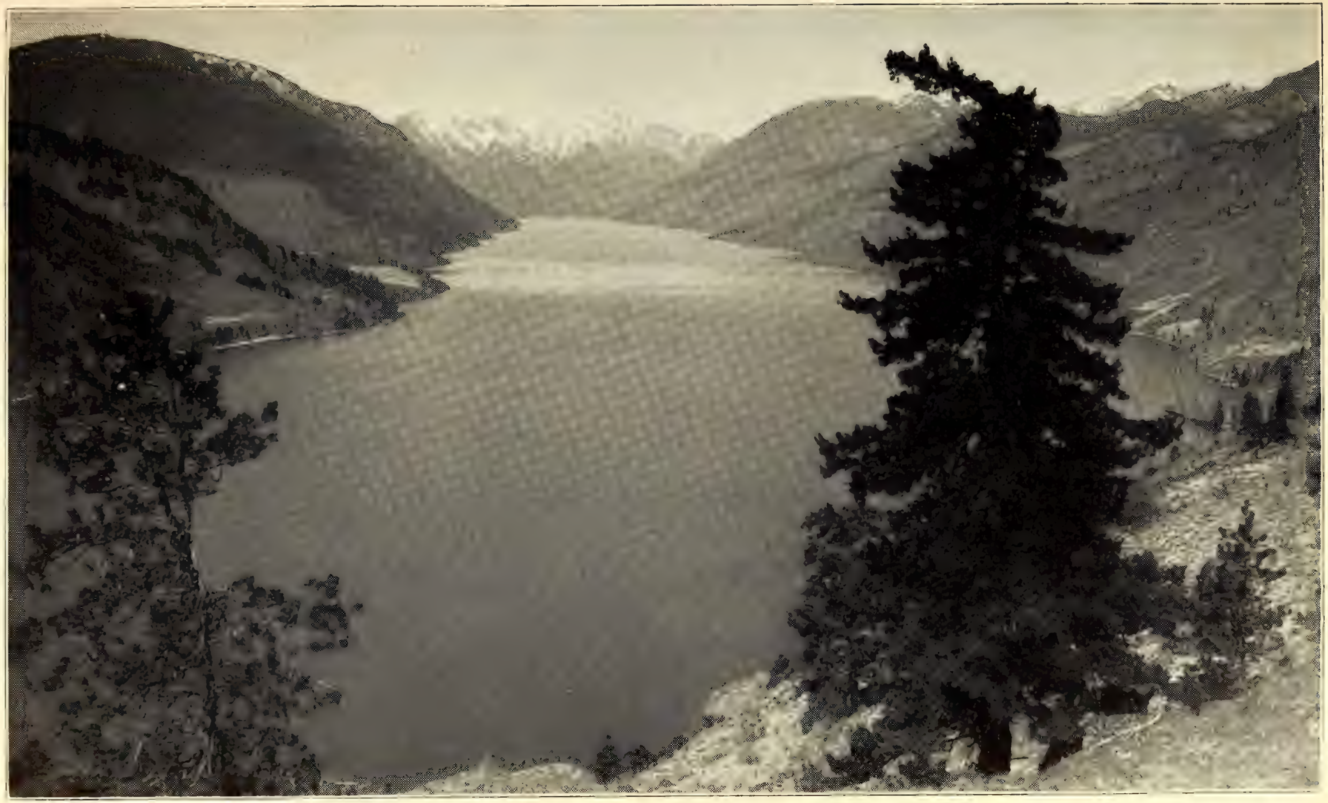
One of the most important features of a club's activities is that of its library. Members shall be encouraged to read what is being done in the mountaineering world, for education in this direction is as essential to a true appreciation and enjoyment of mountaineering as is the work in the field. Copies of many of the new books in mountaineering will be sent to each club for review in its annual publication and bulletins, thereby materially assisting in the growth of its library.

It is believed that the existence of this association will have a valuable influence in many directions, and, occupying the field, its activities may expand as experience and occasion make desirable.

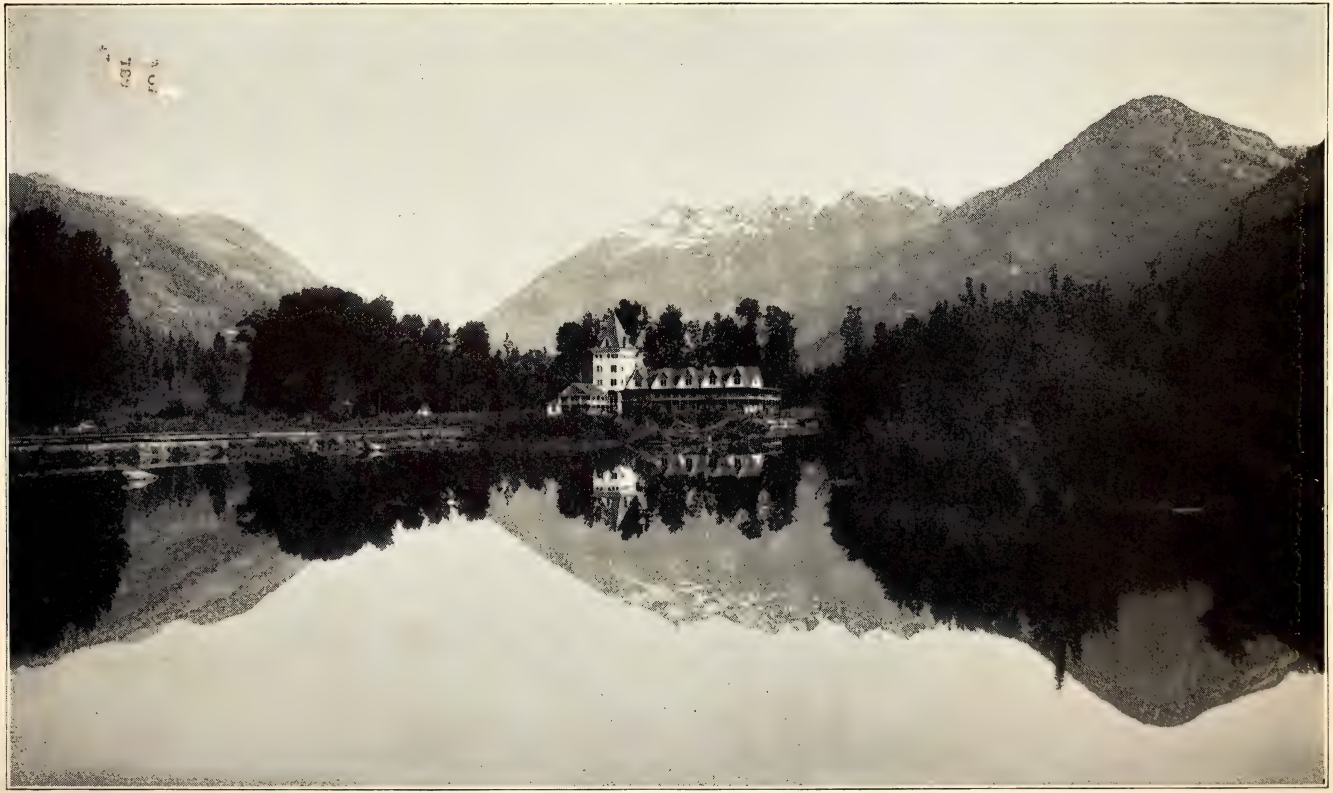
Meeting with a favorable response to the above ideas, I sent out a preliminary letter and received unofficial replies in approval of the plan. At the annual meeting of the American Alpine Club, held at the New York Public Library on January 8, 1916, I presented these letters and asked that the Councilors of the club be instructed to consider the plan and to send out an official letter to each club inviting it to become a member of the proposed association.

After due consideration, the Councilors of the American Alpine Club sent such a letter in March to the leading clubs, asking them to join in a Bureau of Associated Mountaineering Clubs of North America. Securing a majority of acceptances, they declared the plan in operation on May 2, 1916.

The first official act of the Bureau was the publication in May of a bulletin containing statistics of the membership, officers, and activities of the leading mountaineering clubs and geographical societies of the continent. The present membership of the Bureau comprises the following



LAKE CHELAN



HOTEL FIELD, HEAD OF LAKE CHELAN

organizations. (Some others await the annual meeting of their directors.)

American Alpine Club,
American Geographical Society,
Appalachian Mountain Club,
British Columbia Mountaineering Club,
Colorado Mountain Club,
Fresh Air Club,
Geographic Society of Chicago,
Geographical Society of Philadelphia,
Hawaiian Trail and Mountain Club,
Mazamas,
Mountaineers,
Prairie Club,
Sierra Club,
United States National Parks Service.

A valuable reference collection of mountaineering books has been formed by the New York Public Library in the main building at 476 Fifth Avenue, and we have secured the deposit of the library of the American Alpine Club. The combined collection promises to become one of the most important in existence. A collection of photographs and enlargements of mountain scenery in all parts of the world is also being made, and contributions of mounted or unmounted views will be appreciatively received.

LE ROY JEFFERS,
General Secretary

Through the Bureau of Associated Mountaineering Clubs our library has received the following new publications noted in the "Book Reviews": *The Mountain, Through Glacier Park, Blackfeet Tales, Rambles in the Vaudese Alps, Our American Wonderland, Chronicles of the White Mountains, Camping and Woodcraft,* and *A Thousand-Mile Walk to the Gulf.*

⁂

BEAUTIFUL LAKE CHELAN

From Wenatchee a branch of the Great Northern runs on up the Columbia River, and after an hour and a half reaches the station of Chelan. We got out here and took a motor which climbed like a goat (it wasn't a Ford, either) up the cliff wall some hundreds of feet and ran along through the dusty sagebrush beside the edge of a deep cañon where the blue Chelan River foamed and roared below, till we reached the town of Chelan, at the foot of the lake of that name. Perhaps you have heard of Lake Chelan. We, being parochial New Englanders, never had. It is, however, probably the most beautiful lake in America. In fact, we are disposed to back it against all comers, Crater, Geneva, Como, Louise

—any of them. It starts with apples, acres of orchards rising from the shore of the slopes of a low hill which is only a few hundred feet higher than Chocorua—apples and sagebrush and the gray dust from the roads. It runs for fifty miles northwest, never more than three miles wide, and ends in the heart of the high Cascades, amid snow-capped peaks and glaciers. The lake itself is 1800 feet deep, going down 400 feet below sea-level, and it is the blue of heaven, the blue of glacier ice when the sun shines through it, the deep marvelous green of reflected forest walls. There is no other lake like it, and, fortunately for the country, it is now, with its entire watershed, above the developed land at the lower end, a national forest.

You go up the lake by motor-boat. There is absolutely no other way to get to the far end. A road runs on either shore for a few miles till the hills close in, and then gives up. The view from the bow of the boat ten miles above the lower end is much like the view up the Hudson between Storm King and the Point, only the hills at Chelan are much higher, and far up the vista shine the snow-capped peaks of the Cascades. From here on the almost precipitous mountain walls, sparsely clad with fir, plunge directly into the lake—there is absolutely no beach whatever; and they steadily mount higher and higher till they begin to show snow. They are not broken into distinct summits, like the Rockies, but form a castellated wall attaining finally an altitude of over 8000 feet. For forty miles your boat sails between them. If you can imagine the Crawford Notch filled with blue water up above the level of the tracks, extended another twenty miles, and Willard and Willey raised to 8000 feet and snow-capped, you have Lake Chelan. The prospect is made still more lovely by the view across the head of the lake of the main ridge of the Cascades, with one or two glaciers showing.

There are two small but comfortable hotels at the farther end, and little else except primeval forest. After the lake ceases, if you wish to go farther up the cañon, you take horses at the Field Hotel and follow the Forest Rangers' road up the Stehekin River past Rainbow Falls, a beautiful straight fall of 360 feet, into the very heart of the Cascades. This trip can be made a camping trip of two, three, or more days, and will take you, if you wish, into wild horseshoe basins which make Tuckerman's Ravine look like a dimple, or over the high passes, the glaciers, and the snow-fields, where the world below is a wilderness of white-capped summits and wild gorges.

A "pass" in the Cascades is usually some 7000 or 8000 feet up. The summit cones are mere humps in the long ridges, and the passes go over the lofty cols. We went on a one-day trip up War Creek Pass, on horseback. The ranger's trail, clinging often to the sides of precipitous slopes, was just wide enough to give a trained horse footing. It mounted a shoulder of the northerly ridge, through forests of huge Douglas firs and magnificent gardens of lupine, Indian paint-brush, annual larkspur, dog-tooth violets, wild syringa, and scores of other flowers. It ran into snow-patches at about the 6000-foot level, and finally crested the col at over 7000 feet. From this lofty col the long greenish-blue ribbon of the lake lay far below, and the world was a sea of peaks, including Glacier Peak and Mount Agnes to the southwest, both over 10,000 feet, and to the northwest, fifty miles away, the ice-capped summit of Mount Baker. We saw no mountain sheep that day, but coming down we ran through a herd of 2000 domestic sheep, being driven over the range to summer pasturage.

And we reached the hotel in time to go out behind to the Stehekin River and catch enough cut-throat trout for supper, trout weighing about three pounds. They catch Dolly Varden trout in the lake up to ten or twelve pounds. Nothing but trout live in this ice-cold water.

Unfortunately, it is a long way from the Eastern seaboard to Lake Chelan, and the lake is on a branch line from the through road at that. Nor is it a widely advertised national park, with Copley-Plaza hotels stuck down into the scenery. At present it is a spot for simple people who want one of the most beautiful combinations of water and mountain scenery in all the land, splendid fishing, and safe but rough trails into the heart of the high hills, with plenty of opportunity for uncharted mountain-climbing up secondary but by no means easy 8000- to 10,000-foot peaks. Some day Lake Chelan will take its place as one of the nation's famous scenic reservations. But we are glad we got there before the rush.

WALTER PRICHARD EATON

∴

RECORD ON MOUNT KEITH

During the 1916 outing of the Sierra Club the ascent of Mount Keith (13,990 feet) was made by two parties of three members each. Both of these ascents were made from the John Muir Trail by traversing the knife-edge from Junction Pass, a route which has probably not been utilized in previous ascents.

The record on the summit, which is contained in the Sierra Club's Canister No. 29, was found to be in good condition. In it the following ascents are recorded: July 6, 1898, C. B. Bradley, J. C. Shinn, Jennie E. Price, and Robert M. Price; July 6, 1900, Helen M. Gompertz and J. N. Le Conte; August 20, 1909, Talbot C. Walker and Stanley H. Jones; July 25, 1910, C. W. Norton, Sherwood Norton, and Oscar S. Norton; July 23, 1916, Dr. H. B. Graham, E. G. Chamberlain, Agnes W. Vaille, Florence C. Burrell, Inezetta Holt, and Walter L. Huber.

∴

ORIGIN OF NAME KINGS RIVER

In order to settle a question concerning the origin of the name Kings River, Mr. W. H. Spaulding, after some investigation, reports that in a volume entitled *Spanish and Indian Place Names in California,* by

Sanchez, at page 278, an account of the origin of the name is given. The river was named in 1805 by a Spanish exploring party, in honor of three wise men—"El Rio de los Santos Reyes" (The River of the Holy Kings). The account also includes a quotation from Gen. Fremont to the effect that he found the river called by the few Americans in California "Lake Fork," but that all of the Mexicans called the river "El Rio de los Reyes."

It appears that Mount King was named for Clarence King of the California Geological Survey.

∴

Topographic Maps

The topographic map of the United States which is being prepared and issued by the United States Geological Survey, and with which most persons are familiar in the form of "atlas sheets" or "quadrangles," is now only about 40 per cent completed. At the present rate of progress, only about 0.8 per cent of the total area of the country is being mapped each year, and, with the revision which is necessary on maps already issued, nearly a century will be required for the completion of the work. At the suggestion of Professor W. M. Davis, Professor Emeritus of Geology, Harvard University, there has recently been formed a "Committee to Expedite the Completion of the Topographic Map of the United States." This committee proposes to do whatever it can to hasten the completion of the map and asks the aid of all interested parties.

The number of topographic engineers in this country who are qualified to do such mapping is limited; hence there cannot be indefinite expansion of the Survey's activities in this direction. But the present staff could be considerably increased if more funds were available for the work. Aid can be lent to the project by securing larger appropriations from Congress and from the legislatures of the states which are co-operating with the Survey.

The members of the Sierra Club make much use of the maps of the Survey, and should therefore be greatly interested in "expediting the map." Will not the members take it upon themselves individually to lend aid in this campaign by writing to their representatives in Congress asking for favorable consideration for the Survey's requests for appropriations? Further information can be secured by writing to Professor A. E. Burton, secretary of the committee, Massachusetts Institute of Technology, Boston, Massachusetts. Tracy I. Storer

∴

Walking Trip Between Lake Tahoe and Yosemite

Any persons desirous of taking a two-weeks walking trip between Lake Tahoe and Yosemite, During July, August, or September, may find it of interest to communicate with Mr. and Mrs. Richard Michaelis, Corte Madera, Cal.

MEMORIAL EXERCISES IN HONOR OF JOHN MUIR

We are indebted to Mrs. Anna N. Kendall, a member of the outing party of 1911, for the following account of the exercises in honor of John Muir at the University of Wisconsin on December 6, when the bust by C. S. Pietro, given to the university by Thomas E. Brittingham, of Madison, was unveiled:

> *Dear Mr. Colby:* I am sending you the program of the exercises in honor of John Muir and the unveiling of the bust of him. I thought of you, one of his younger friends, as his older friends, comrades, schoolmates, and professors sat on the platform, some of them very old and very white of hair, but all voicing his praise most sincerely and genuinely, and certainly with deep affection and emotion. I wish their words could be printed in full, also that I had a photograph of the platform with the old men sitting and standing, all with the expression and attitude of loving remembrance of their old-time friend.

The program, after naming the speakers, concludes with a "Tribute" from Dr. S. Hall Young and this letter from John Burroughs:

> West Park, N. Y., Nov. 29.
>
> *Dear Sir:* I wish I could be with you on Dec. 6th when the University of Wisconsin proposes to do honor to the memory of one of its old pupils, John Muir; but the very serious illness of my wife and my own uncertain health will not permit me to enjoy that privilege.
>
> My affection and admiration for Muir were deep and genuine. When in his company I used to chafe a good deal under his biting Scotch wit and love of contradiction. He loved a verbal contest which was, with him, only another form of the trial of grit which in his school days he used to cheerfully submit to when two boys, armed with whips, used to stand up before each other and lay on till one of them cried enough. As I had never had that kind of Scotch discipline I did not keenly enjoy this sort of diversion. But his heart was all right, only he liked too well to mask its real kindliness in this way.
>
> He was a genuine student and lover of nature, and he has brought to us the message of the mountains as no other man has.
>
> In recently reading Emerson's Journals, I was struck and pleased with the fact that he places John Muir in the list of what he called "My Men." In said list the first is Thomas Carlyle, whom he first met in 1833, and the last is John Muir, whom he met in 1871. Muir's nature lore and his striking characteristics were bound to make an impression upon Emerson. He met no "mush of concession" when he met Muir. Muir tried to persuade him to quit his party for a night and go and camp with him in the woods, but Emerson's friends objected. Muir said Emerson had the "house habit." But Emerson looked upon himself then as an old man, though he was only 68.
>
> I am glad your university is to pay this tribute to its famous and beloved old student.
>
> With all good wishes, I am,
>
> Very sincerely yours,
> JOHN BURROUGHS
>
> Julius E. Olson, Esq.,
> Madison, Wis.

RECORDS OF SIERRAN ANIMALS IN MAGAZINE

Mr. W. E. COLBY, Secretary Sierra Club.

Dear Mr. Colby: It occurs to me that a valuable addition to the club's annual magazine would be a record of the animals seen during the annual outings.

Some of the members who go on the trips could make the necessary notes and write up the articles, giving the dates, localities, descriptions, etc. The knapsack parties would naturally be the ones to see any deer, bear, or mountain sheep, and it would be well for this to appear in the magazine, giving more of a popular than a scientific write-up.

If I can be of any help in the premises, please call on me.

Yours very truly,

M. HALL MCALLISTER

∴

EVERETT SHEPARDSON

Early in January the Sierra Club lost one of its most active members, Mr. Everett Shepardson, of Los Angeles. Mr. Shepardson has served on the executive committee of the Southern California Section ever since its organization, and was for three years its chairman. He was also an earnest worker on the Muir Lodge Committee. During the holidays, with a party of friends, he went on a knapsack trip into the mountains, where they were overtaken by a severe snow-storm, suffering great privation. Doubtless the exposure and attendant hardship contributed largely to his death. For many years he has been an enthusiastic member of the annual outings and will be sadly missed.

∴

KINGS RIVER CAÑON

Mrs. P. A. Kanawyer wishes to announce to her friends that she is still in the business of packing and outfitting for trips into Kings River Cañon and vicinity, and that her store and camp in the cañon will be open as usual in the summer. Her address is Dunlap, Cal.

TEXT OF THE NATIONAL PARK ACT

An Act to establish a National Park Service, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby created in the Department of the Interior a service to be called the National Park Service, which shall be under the charge of a director, who shall be appointed by the Secretary and who shall receive a salary of $4500 per annum. There shall also be appointed by the Secretary the following assistants and other employees at the salaries designated: One assistant director, at $2500 per annum; one chief clerk, at $2000 per annum; one draftsman, at $1800 per annum; one messenger, at $600 per annum; and, in addition thereto, such other employees as the Secretary of the Interior shall deem necessary: *Provided,* That not more than $8100 annually shall be expended for salaries of experts, assistants, and employees within the District of Columbia not herein specifically enumerated unless previously authorized by law. The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

SEC. 2. That the director shall, under the direction of the Secretary of the Interior, have the supervision, management, and control of the several national parks and national monuments which are now under the jurisdiction of the Department of the Interior, and of the Hot Springs Reservation in the State of Arkansas, and of such other national parks and reservations of like character as may be hereafter created by Congress: *Provided,* That in the supervision, management, and control of national monuments contiguous to national forests the Secretary of Agriculture may co-operate with said National Park Service to such extent as may be requested by the Secretary of the Interior.

SEC. 3. That the Secretary of the Interior shall make and publish such rules and regulations as he may deem necessary or proper for the use and management of the parks, monuments, and reservations under the jurisdiction of the National Park Service, and any violations of any of the rules and regulations authorized by this Act shall be punished as provided for in section fifty of the Act entitled "An Act to codify and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine, as amended by section six of the Act of June twenty-fifth, nineteen hundred and ten (Thirty-sixth United States Statutes at Large, page eight hundred and fifty-seven). He may also, upon terms and conditions to be fixed by him, sell or dispose of timber in those cases where in his judgment the cutting of such timber is required in order to control the attacks of insects or diseases or otherwise conserve the scenery or the natural or historic objects in any such park, monument, or reservation. He may also provide in his discretion for the destruction of such animals and of such plant life as may be detrimental to the use of any of said parks, monuments, or reservations. He may also grant privileges, leases, and permits for the use of land for the accommodation of visitors in the various parks, monuments, or other reservations herein provided for, but for periods not exceeding twenty years; and no natural curiosities, wonders, or objects of interest shall be leased, rented, or granted to anyone on such terms as to interfere with free access to them by the public: *Provided, however,* That the Secretary of the Interior may, under such rules and regulations and on such terms as he may prescribe, grant the privilege to graze live-stock within any national park, monument, or reservation herein referred to when in his judgment such use is not detrimental to the primary purpose for which such park, monument, or reservation was created, except that this provision shall not apply to the Yellowstone National Park.

SEC. 4. That nothing in this Act contained shall affect or modify the provisions of the Act approved February fifteenth, nineteen hundred and one, entitled "An Act relating to rights of way through certain parks, reservations, and other public lands."

Approved, August 25, 1916.

⁂

REPORT OF ASSISTANT TO THE SECRETARY OF THE INTERIOR ON PROGRESS IN THE DEVELOPMENT OF NATIONAL PARKS FOR 1916

The report of Honorable Stephen T. Mather, Assistant to the Secretary of the Interior, covering the National Park situation for the past year should be read by everyone who wishes to keep in touch with the wonderful development which has been going on in the national parks under Mr. Mather's able supervision. For the benefit of the members of the Sierra Club, the following abstract of this report is made. This report is addressed to the Secretary of the Interior, Honorable Franklin K. Lane. Mr. Mather states at the outset that Mr. Lane had in mind the fact that the scenic features of this country were unsurpassed, and that American tourist travel should be induced to visit these parks not only during the great war, but after its conclusion. In order to accomplish this purpose, accommodations for visitors with both large and small incomes should be provided and means of travel to the parks and through the parks perfected. Mr. Mather was authorized to begin the development of these parks "on a broad-gauge scale," and he has justified Secretary Lane's faith in his ability to undertake this great work. Mr. Mather very early selected Robert Sterling Yard to take charge of the campaign of public education, and all of our members are familiar with the beautiful *National Park Portfolio* which was only a part of the educational campaign. This was published through the co-operation of the Government with the railroads benefited by such advertising.

Publications all over the country were furnished with photographs and material descriptive of the parks, and the interest awakened has resulted in a great demand for the loan of photographs, motion pictures, lectures, etc., which the department is as yet unable to meet.

The increased travel to the parks during 1916 has fully justified this educational campaign, for the 1916 travel exceeded the travel of the year previous, in spite of the fact that the International Exposition at San Francisco was closed. In motor travel particularly was the increase noticeable; since 12,563 cars registered at the various parks in 1915, while 19,848 cars, carrying 78,916 tourists, registered in 1916. In the near future it is quite evident that the travel in private machines will constitute the greater portion of park travel, and as a consequence this necessitates the construction of new roads and the improving of those already existing. The revenue from this motor travel is also encouraging. In 1916, $65,311 was received from automobile fees, as against $42,589 in 1915 and $14,245 in 1914.

> Vigorous protests have been made against this direct tax on the motorist, but it must be maintained until larger appropriations are made for the construction and maintenance of roads suitable for motor traffic. Perhaps it should be continued indefinitely as a means of providing funds to repair the natural wear and tear on roads and bridges, the deterioration of which is unusually severe where they are used extensively by motor cars.

Mr. Mather feels that the policy of allowing automobiles in the national parks has been fully justified by the results.*

Mr. Mather points out the fact that Congress has largely increased its appropriations, showing that it responded to the popular interest in these parks. Over half a million was appropriated for the fiscal year 1917, as against a little over quarter of a million for the fiscal year 1916, and for the first time Congress provided for the care and protection of national monuments under the Department of the Interior, appropriating $21,500.

If Mr. Mather had done no other one act, the people of the United States would be deeply in his debt as a result of the recent purchase of the patented lands in the Giant Forest. These were lands in the Sequoia National Park in the immediate vicinity of Ranger Station and in the very heart of the forest, including some of the finest stands of the great sequoia. An option was secured from the owners for $70,000, and through Mr. Mather's efforts the sum of $50,000 was appropriated by

---

*In this connection it will be recalled that Mr. Muir and the Sierra Club approved of allowing automobiles to enter Yosemite National Park, realizing that it would mean a great increase in visitors.

Congress toward this purchase. In order to make up the balance, Mr. Mather secured the co-operation of the National Geographic Society, which generously and patriotically appropriated $20,000 out of its treasury, so that this splendid forest of monarchs might be preserved for all time.

NATIONAL PARK SERVICE

The crowning act of last year's administration of the parks was the creation of the National Park Service, of which Mr. Mather has the following to say:

> The special legislation of greatest importance was the passage of the National Park Service bill, providing for the establishment of a bureau in Washington to administer as a properly coordinated system all of the national parks and the national monuments under the jurisdiction of the Interior Department. This substitutes efficiency for the former haphazard consideration of each separate park by a small force in the office of the chief clerk of the department, already burdened with numerous other important duties.
>
> This measure provides for the appointment of a director and assistant director as the executive officers of the bureau and a small corps of clerks, stenographers, etc., all charged with the performance of duties relating solely to the administration and supervision of the national park system. It is an important step forward which renders possible the realization of the manifest destiny of our national parks as one economic asset.

NEW NATIONAL PARKS

Mr. Mather reports the creation of the new Lassen Volcanic National Park in California, and the Hawaii National Park, which embraces the craters of the three great volcanoes, Kilauea, Mauna Loa, and Haleakala, on the Hawaiian Islands.

The bill for the creation of Mount McKinley National Park in Alaska passed the Senate and is pending before the House. There is also a bill pending providing for the extension of the Rocky Mountain National Park. Recent Federal legislation following up state legislation has vested the Federal Government with exclusive jurisdiction in the Yellowstone, Mount Rainier, and Crater Lake national parks, and provision has been made for the United States Commissioners who will sit as local judges to punish violations of the rules and regulations. Mr. Mather points out the importance of having similar steps taken in connection with the parks in California and Colorado, but exclusive jurisdiction over these parks must first be ceded to the Federal Government by legislatures of these states.*

The Yellowstone, Yosemite, Mount Rainier, Sequoia, and General Grant parks have shown by the revenues of this last year that they are paying their own way as far as administrative cost is concerned, and when they have been thoroughly developed by proper roads and trails they ought to become self-supporting.

---

*This is most desirable, and is something that the Sierra Club should work to accomplish as far as California is concerned.—*Editor.*

YELLOWSTONE NATIONAL PARK

The opening up of the Cody (or eastern) entrance to the park by railroad was accomplished this last year, and a fourth entrance on the south is planned. Automobile travel into the park was heavy during the season; 3445 automobiles, carrying 14,980 tourists, entered the park. All transportation lines in the park will be motorized, and the stage-horses will become things of the past. An important innovation was the removal of the Federal troops. These were replaced by a corps of civilian rangers selected from the officers and soldiers who had just been policing the park.

GLACIER NATIONAL PARK

Glacier was a very popular park last season, and satisfactory accommodations for the care of the tourist contributed largely to this popularity. In addition to the first-class hotels, chalets, and camps in existence, extensive additions to existing hotels are being planned. It is quite important that additional roads be built to open up the marvelously beautiful but less accessible regions of the park. By special arrangement, Mr. Mather has secured a splendid administrative site near the southern boundary of the park, which he has agreed to donate to the Government, and has secured the co-operation of the citizens of that vicinity, so that, if Congress makes the necessary appropriations, new administrative buildings will be constructed and the park entrance further improved in that vicinity.

> The appropriation of $110,000 for the protection and improvement of Glacier Park which was contained in the last sundry civil bill has enabled us to greatly improve the roads on the east side of the park, particularly the road in the Blackfeet Indian Reservation between Glacier Park Station and Divide Creek. Nearly $45,000 has been spent on this section during the past season.
>
> It has also made possible the construction of several new trails. Among these new trails are the Grinnell Glacier trail and the new trail between the Glacier Hotel and Avalanche Creek. The latter trail will be extended to Granite Park next spring, and when completed will be one of the most scenic trails in the park system. Shelter cabins of attractive design are also under construction at Triple Divide, Red Eagle Lake, Piegan Pass, and Iceberg Lake, and next season will welcome the hiker and other trail travelers when storms overtake them or when they find it desirable to break their trips for other purposes.
>
> An elaborate trail sign system is also being installed for the benefit of the hiker and independent tourist who chooses to ride over the trails without guide service. A trail map of the park is in contemplation as a further aid to the lover of the trails.

Mr. Mather has also reorganized the saddle-horse service, so that in the future there ought not to be any shortage of animals for the trail.

YOSEMITE'S GREAT DEVELOPMENT

A survey of the 1916 season in Yosemite National Park quickly and clearly defines three heads under which its development may be discussed. These are, first, new contracts covering large public-service concessions; second, increased Federal appropriations for improvement and protection of the park; third, removal of restrictions on motor travel.

For many years the department unsuccessfully endeavored to induce parties with capital to undertake the construction of new hotels in the park, particularly on the floor of the valley. No individual or corporation could be interested in the park, and its future at the opening of the exposition season was dark indeed. Then D. J. Desmond, of San Francisco, general commissary contractor operating in all sections of the state, a young man already successful in business, a man of vision and immense energy, had the situation in the Yosemite brought to his attention. He saw its opportunities, and applied for a comprehensive concession covering the operation of hotel, camps, transportation service, stores, garages, etc.

This application was not granted to him at that time, but he was permitted to install and operate a new camp during the 1916 season with the understanding that if he rendered good service in his camp he would have a long-time concession. He built and operated the Yosemite Falls camp and gave his guests service of a high order. He more than met the conditions. Accordingly, the department entered into contracts with the Desmond Park Service Company, of which Mr. Desmond is president, covering the following: The erection of a hotel on the floor of the valley, to cost not less than $150,000; and another hotel at Glacier Point, to cost approximately $35,000; camps on the floor of the valley; lodges at various points in the higher parts of the park and along the Tioga road, which crosses the park at some distance from the rim of the gorge; the installation and operation of automobile transportation on all the roads of the park open to motor travel; the operation of trail transportation, and the construction and operation of stores, garages, etc.

The privileges granted in these contracts by their terms are to be exercised for a period of twenty years, and the department in consideration of granting these concessions receives annually during the first two years of the life of the contract 25 per cent of the net profits of the enterprise, and thereafter 50 per cent of the net profit. The net profit of the company is determined by deducting from the gross income 6 per cent on money invested in the enterprise, depreciation of equipment, buildings, etc., and expenses of operation, such as salaries, advertising, and insurance. It is provided, however, that, if this profit-sharing clause operates to the disadvantage of the department, it may elect at the end of two years to take 4 per cent of the gross income of the company instead of a share of the net profits.

Under this contract the Desmond Park Service Company erected, prior to the opening of the 1916 season, two camps on the floor of the valley, the Yosemite Falls camp and the El Capitan camp, and operated them during the season; also the Glacier Point hotel camp, and three new lodges at Lake Tenaya, Tuolumne Meadows, and Lake Merced; all of which proved popular because of the excellent accommodations and service rendered. New automobile stage service was established during the season on the Mariposa and Chinquapin roads south of the valley, and on the Tioga road and Big Oak Flat road, as well as on the floor of the valley itself.

Furthermore, construction work on the new hotel at Glacier Point was undertaken, and is now nearing completion. On the Fourth of July ground was broken for the new hotel on the floor of the valley, and it is now in the course of erection. This building will be ready for the 1918 tourist season.

This outline of what the Desmond Park Service Company has already accomplished and has under way should leave no doubt in the mind of anyone that Yosemite National Park is well provided with excellent accommodations for its visitors, and that more and finer accommodations and highest-class hotel service are still to come.

Camp Curry, Camp Ahwahnee, and Camp Lost Arrow, long established in the Yosemite Valley, were operated this season under their managements of former years.

CONGRESSIONAL APPROPRIATIONS

Congress made a more liberal appropriation for Yosemite National Park for the fiscal year ending June 30, 1917, than for any previous period. This appropriation made available $250,000 for protection and improvement of the park. It was provided, however, that not more than $150,000 might be expended in the construction of a new hydroelectric power plant, and not more than $75,000 in regrading the El Portal road. There was nothing specifically appropriated for other roads in the park, but they were improved with revenue derived from concessions granted, automobile license fees, and from miscellaneous sources.

The new hydroelectric power plant was an absolute necessity, in view of the increasing demands for power, light, and heat for the park concessioners, and it was desirable that this demand be met by the Government because the sale of electric current meant a substantial revenue for the park. During the summer of 1913 the late Mr. Henry Floy, electrical engineer, of New York, and sometime inspector of the Interior Department, made a careful study of this hydroelectric power project, and it was largely his able presentation of the results of his study of this project before the Committee on Appropriations that gained for it favorable consideration. The new plant is now in the course of construction.

In general, it may be said that power plants, water and sanitation systems, and telephone lines in national parks should be owned and controlled by the Government. Their construction by the Government relieves the concessioner from the necessity of investing in these highly essential works and makes it possible for him to turn his capital into the further development of his own enterprise. Furthermore, as public works under the control of the National Park Service, they can always be made to yield a revenue.

The increase in motor travel was remarkable, and a comparison of the number of machines entering the park this season with the number registered during 1914 and 1915 constitutes the best index of the sound, substantial growth of the park's popularity. The records indicate that in 1914, 673 cars entered the park; in 1915, 3895; and in 1916, prior to October 12, 3938. This season 14,166 tourists entered the park in private machines. It is generally understood that automobile parties remain in the park a longer time than any other class of tourists. This is particularly true of those who visited the floor of the valley in their cars.

It has been indicated that the removal of restrictions on motor traffic is one of the important factors that has influenced park development during the season of 1916. Prior to this season no private machines were ever allowed to run on the floor of the valley, but the opening this season of these roads was largely responsible for the great influx of private cars and the extraordinary length of time spent by motorists in the park. Next season it is expected that motor travel will be double that of this season. This is a conservative estimate.

It is inevitable that for several years Yosemite Park will be just as popular with the motorists as Yellowstone, and yet the roads in this park are so inferior to those of Yellowstone that it is useless to compare them. Appropriations should be made at once to extensively improve the Tioga road and Big Oak Flat road, and to continue the regrading of the El Portal road. These highways should be put in as good condition as the state highways with which they connect. The Wawona road should also be improved, but this is a toll road, and until private interest in the same is extinguished and it becomes a public highway its reconstruction cannot be undertaken. The Wawona and Chinquapin toll roads are the only remaining roads in the national parks that are not under the control of the National Park Service. They constitute a constant source of administrative difficulty, and their private control is inconsistent with the best interests of the park. The additional cost of using this road, which the tourist traveling in his own conveyance has to bear, discourages travel via Fresno and Merced and other cities in their vicinity.

Dignified gateways should be constructed at the several entrances, particularly at the points where the Wawona, El Portal, and Tioga roads enter the park boundaries.

MOUNT RAINIER NATIONAL PARK

The Rainier National Park Company was granted a comprehensive concession, including the privilege of operating hotels, camps, transportation service, stores, and garages. A first-class hotel camp is under construction in Paradise Valley, and will be opened up for the season of 1917. This company also operates an automobile service between Tacoma and Seattle and various points in the park. On account of the exceedingly heavy winter, the season opened very late in the park last year. It is highly desirable that other sections of the park be opened up so as to make accessible the incomparable Spray and Moraine parks lying on the northern slope of the mountain. A road up the Carbon River would accomplish this purpose, and a survey has already been made.

CRATER LAKE NATIONAL PARK

Mr. Mather plans to completely reorganize the Crater Lake hotel concession. The construction of the scenic highway around the lake was continued.

SEQUOIA NATIONAL PARK

In Sequoia National Park the lack of roads and hotel accommodations, while not discouraging tourist travel particularly, has militated against the park's popularity. A new hotel or camp is a necessity, and it is essential that a new administrative building be erected and an adequate water system be installed in the Giant Forest; also that provision be made for the sanitation of the village in the forest.

As the Giant Forest is the scenic attraction of the park at the present time, and indeed the only accessible part, its improvement must have attention. The major portion of the trees in the Giant Forest grow on land held in private ownership, but, as has been stated, Congress has appropriated $50,000 and the National Geographic Society has advanced $20,000 to complete their purchase and revest title to them in the United States. Funds were also appropriated by Congress for a new bridge over the Marble Fork of the Kaweah River near the Giant Forest.

The new basis of compensation for privileges granted to the Mount Whitney Power & Electric Company in the park has netted the revenue fund more than $7000 during the past year. This fund is now just large enough to protect and administer the park. Appropriations for improvement only will be requested.

"THE GREATER SEQUOIA"

Senate bill 5913, introduced by Senator Phelan, and House bill 13168, by Representative Kent, providing for enlarging Sequoia National Park to include the Kings and Kern cañons and several miles of the crest of the Sierra Nevada, including Mount Whitney, are now pending in Congress, and will be considered in the short session which convenes in December. The early enactment of this legislation cannot be too strongly urged.

The public land proposed to be added to Sequoia National Park by these measures will never be valuable for any other than park purposes. Cattle are grazed on the mountain meadows during part of the year, but the administration of these meadows as part of the park will not interfere with the exercise of grazing privileges for many years to come. Small tracts of land here and there will be fenced for pasturage of livestock used by tourists.

Sequoia Park now has the giant sequoia trees as its one attraction, but if enlarged as proposed it will become a scenic park of as much distinction as that possessed by any other park in the system. Furthermore, it will become a game sanctuary of as much importance as the Yellowstone National Park.

GENERAL GRANT NATIONAL PARK

General Grant National Park had a 50-per-cent increase in the number of visitors this year. There has been a remarkable increase in travel to this park since 1914. In that season 3735 visitors registered in the park, last year the number jumped to 10,523, and this year to 15,360; 8612 people entered this year in automobiles.

The fees from automobiles so increased the revenues of this park that it may now be administered without appropriations by Congress. However, an appropriation will be needed for a water system, a new ranger station, and other improvements that are absolutely essential.

ROCKY MOUNTAIN NATIONAL PARK

This park had more visitors than any other large scenic park during the past year, and the accommodations were taxed to their maximum capacity. Additions to the larger hotels will take care of this heavy travel next year. It is quite essential that the Government appropriate additional money for improvements in this park. A bill now pending before Congress provides for the addition of a number of scenic tracts which will bring the entire boundary of the park close to the city limits of Estes Park.

∴

National Parks Conference

The National Parks Conference, held in the auditorium of the New National Museum, Washington, D. C., January 2 to 6, not only resulted in stimulating discussions of every phase of national park development, but also aroused unusual public interest. The evening sessions in particular, four of which were devoted to illustrated lectures on the parks, brought out such increasing crowds that on the final evening an overflow audience of between two and three hundred persons waited patiently for over an hour in an anteroom to hear the "Bear Stories" of Enos Mills, who generously repeated his talk for their benefit. We have not space even to enumerate the speakers, more than fifty men prominent in administrative, departmental, civic, and editorial work, men whose co-operation in this movement indicates the growing importance of the parks in national affairs. Talks by W. A. Welch, Chief Engineer of the Palisades Interstate Park, by J. B. Harkin, Commissioner of Dominion Parks, Canada, by Professor E. M. Lehnerts, of the University of Minnesota, and by Herbert Quick, the author, were especially significant. One session was devoted to "Motor Travel to the Parks," another to "Wild Animal Life," and another to "Recreational Use of National Parks." The names of such speakers as Henry S. Graves, Chief of the Forest Service, E. W. Nelson, Chief of the Biological Survey, Dr. Charles D. Walcott, Secretary of the Smithsonian Institution, Charles Sheldon, of the Boone and Crockett Club, Gilbert H. Grosvenor, Editor of the National Geographic Magazine, Huston Thompson, Jr., Assistant Attorney-General, and Mrs. John Dickinson Sherman, Conservation Chairman of the General Federation of Women's Clubs, indicate the scope of the conference and the broad, constructive policy of the National Park Service. The success of the conference was in great measure due to the untiring work of Mr. Robert Sterling Yard.

REPORT OF SUPERINTENDENT OF NATIONAL PARKS FOR 1916

The annual report of the Superintendent of National Parks for the year 1916 contains a tremendous fund of information of vital interest and gives in detail the plans and accomplishments of the National Park Service. The following recommendations concerning the Ranger Service are particularly important:

> I strongly recommend that each member of the corps be appointed in the National Park Service, rather than as at present to the park in which they are to work, so that an employee in one park may be readily transferred to another park, where his training and experience make him more valuable to the Service.
>
> The ranger force in reality makes the success or failure in administering the parks, and I feel that there should be a civil-service examination to determine the educational qualifications of the rangers. While such an examination can not determine the most important requirements, temperament, tact, etc., it would give an assured fundamental base to build upon, and after one season's trial, before a permanent appointment was made, the department would know if the ranger had the desired all-around qualifications for the ranger corps.
>
> The longer a man is in the service the more valuable he is, and, therefore, I think a ranger should enter the service with the desire of making it his life's work, and after the service is once fully organized, promotions to higher positions should be made in the corps, so that each man would have the fullest incentive to give his best service, knowing that advancement would be based solely on character and general efficiency.

The suggestions concerning appropriations for road and trail construction are particularly pertinent and point out the tremendous waste that is certain to result from piecemeal appropriation. It is questionable if Congress can be induced to alter its "pork barrel" methods, which are diametrically opposed to the greatest efficiency and economy of expenditure. Mr. Marshall also points out the great need of sanitation and appropriate sewer systems in the various parks, which need is becoming doubly important because of the continually increasing travel.

Appended to this report are the reports of the various park supervisors. Particularly interesting to us is the report of Mr. W. B. Lewis, Supervisor of the Yosemite National Park. He points out the necessity for suitable bridges across the river, to take the place of those that no longer meet the existing requirements. He recommends the extension of the Washburn Lake trail to join the Isberg Pass trail, also a new trail from the McClure Fork of the Merced via Babcock and Emerick lakes over Tuolumne Pass, to take the place of the present trail over the much higher Vogelsang Pass. This is a most desirable change, as it will enable travel to pass from the Merced Lake region to Tuolumne Meadows much earlier and with much less effort than via the Vogelsang route.*

---

*We are informed that last fall a trail was built from Lake Tenaya via Magee Lake to the Tuolumne River and thence down to the Waterwheel Falls in the main Tuolumne Cañon. This is a splendid piece of work, and the trail should be continued on down the Tuolumne Cañon. However, members of the Sierra Club feel very strongly that a trail should first be built from the vicinity of Hardin Lake near the Tioga road down into Pate Valley, following the grade of the old Indian trail, All of the reports of the various park supervisors will bear careful reading, and we recommend these comprehensive reports by Mr. Mather and Mr. Marshall as being the most convincing evidence of the great progress in national park affairs during the past year.

VISITORS TO PARKS, 1909 TO 1916

Name of park.	1909	1910	1911	1912	1913	1914	1915	1916
Hot Springs Reservation	(1)	120,000	130,000	135,000	[2] 135,000	[2] 125,000	[2] 115,000	118,740
Yellowstone National Park	32,545	19,575	23,054	22,970	24,929	20,250	51,895	35,849
Casa Grande Ruin	(1)	(1)	[2] 450	[2] 450	[2] 450	[2] 500	500	1,909
Sequoia National Park	854	2,407	3,114	2,923	3,823	4,667	7,647	10,780
Yosemite National Park	13,182	13,619	12,530	10,884	13,735	15,145	33,452	33,390
General Grant Nat'l Park	798	1,178	2,160	2,240	2,756	3,735	10,523	15,360
Mount Rainier Nat'l Park	5,968	8,000	10,306	8,946	13,501	15,038	35,166	23,989
Crater Lake National Park	4,171	5,000	[2] 4,500	5,235	6,253	7,096	11,371	12,265
Wind Cave National Park	3,216	3,387	3,887	3,199	3,988	3,592	2,817	9,000
Platt National Park	25,000	[2] 25,000	30,000	[2] 31,000	[2] 35,000	[2] 30,000	[2] 20,000	[2] 30,000
Sullys Hill Park	190	190	[2] 200	[2] 200	300	500	1,000	[2] 1,500
Mesa Verde National Park	165	250	206	230	280	502	663	1,385
Glacier National Park	....	....	[2] 4,000	6,257	12,138	14,168	14,265	12,839
Rocky Mountain National Park	....	....	....	....	....	....	[2] 31,000	[2] 51,000
Hawaii National Park	....	....	....	....	....	....	....	(1)
Lassen Volcanic National Park	....	....	....	....	....	....	....	(1)
Total	86,089	198,606	224,407	229,534	252,153	240,193	335,299	358,006

[1] No record. [2] Estimated.

AUTOMOBILE AND MOTORCYCLE LICENSES ISSUED, SEASONS OF 1914, 1915, AND 1916

	1914		1915		1916	
	Automobiles.	Motorcycles.	Automobiles.	Motorcycles.	Automobiles.	Motorcycles.
Yellowstone	....	....	958	....	3,445	....
Sequoia	158	....	330	11	735	4
Yosemite	673	....	3,895	....	3,938	....
General Grant	392	12	1,584	40	1,749	39
Mount Rainier	1,594	188	3,238	247	3,795	97
Crater Lake	1,107	18	2,015	31	2,600	26
Mesa Verde	34	4	86	....	184	2
Glacier	267	4	457	26	902	11
Wind Cave	(1)	(1)	(1)	(1)	[2] 2,500	(1)
Total	4,225	226	12,563	355	19,848	179

[1] No record kept or estimate made. [2] Estimated.

---

crossing the Tuolumne River in Pate Valley, and continuing on out of Pate Valley to the north to a connection with the present Pleasant Valley—Rodgers Lake trail. This trail would enable parties to leave the Yosemite Valley and easily enter the northern portion of the park, which is now walled off from easy access by the Grand Cañon of the Tuolumne. The work of the city of San Francisco in Hetch-Hetchy Valley has removed the main opportunity for camping on the floor of the valley, and has rendered the crossing of the cañon at that point much less desirable. It is important that the route suggested through Pate Valley should be opened up at as early a date as possible, to take the place of the former route through Hetch-Hetchy, so that the northern portion of the park may become easily accessible from Yosemite Valley. This would have the double advantage of allowing persons to return via Tuolumne Meadows, thus making a round trip that can not be excelled, and will enable a trail to be started from Pate Valley up to the Tuolumne Cañon to meet the trail already commenced leading down from Tuolumne Meadows.—*Editor.*

FORESTRY NOTES

Edited by WALTER L. HUBER

◆

EXTRACT FROM ANNUAL REPORT OF HON. DAVID F. HOUSTON, SECRETARY OF AGRICULTURE

RECREATION USE OF THE FORESTS

The use of the national forests for recreation purposes continues to extend. Thousands of local recreation centers, public picnic and camping grounds, excursion points, and amusement resorts are being developed. Some of the areas, located near enough to cities and towns to be reached by considerable numbers of persons, serve already the purposes of municipal recreation grounds and public parks. To meet local needs along this line, the department is co-operating with municipalities. These forms of public service can be rendered without difficulty in connection with the fulfillment of the general purposes of the forests.

NATIONAL FORESTS AND NATIONAL PARKS

The handling of the national forest recreation resources inevitably raises the question of the relation of the national forests and the national parks. At present there is no clear distinction in the public mind between the two. Both are administered for the benefit of the public along lines which overlap. The parks and forests occur side by side and have the same general physical characteristics—extensive areas of wild and rugged lands, for the most part timbered, with development conditioned upon road construction and similar provisions for public use. They differ chiefly in the fact that the attractions of the national parks from the recreational standpoint are more notable. Yet this is not always true. Several of the parks are inferior in their natural features to portions of the forests. The need of drawing a clear distinction between national parks and national forests and of a definite policy governing their relation is increasingly evident. Parks are being advocated where the land should stay in the forests, while elsewhere areas which should be made parks continue to be administered as forests—for example, the Grand Cañon of the Colorado.

A national park should be created only where there are scenic features of such outstanding importance for beauty or as natural marvels that they merit national recognition and protection and, on this account, have a public value transcending that of any material resources on the same land—such areas, for example, as those now comprised in the Yellowstone and Yosemite parks and in the Grand Cañon National Monument. The areas should be large enough to justify administration separate from the forests and the boundaries drawn so as not to include timber, grazing, or other resources the economic use of which is essential to the upbuilding and industrial welfare of the country. In addition, when parks are created from parts of the forests, the portions remaining as forests should not be left in a form difficult or impossible to administer.

CLEAR-CUT POLICY NECESSARY

The importance of a clear-cut policy is evidenced by the efforts frequently made to secure the creation of national parks out of areas containing great bodies of timber, extensive grazing lands, and other resources, the withdrawal of which from use would be uneconomic and prejudicial to the local and general public interest. In most cases the desire for a specific park, where economic use of the resources also is essential, has led to the proposal for an administration of the area, after the creation of the park, identical with the present forest administration. Several such measures now are before Congress. Their enactment would result in a mere division of the public properties into parks and forests, having no distinction except in name; handled alike but by duplicate organizations in different departments. Still more serious is the fact that the cutting up of the forests would greatly cripple administration of the remaining lands. It would doubtless mean the abandonment of large areas which should remain under public ownership and control for timber production and watershed protection. It would greatly reduce efficiency in forest-fire protection and in the handling of current business, increase the expense of protection and administration, and cause endless confusion to users, who in many cases would have to deal with two departments in developing resources when, for instance, logging and grazing units overlap.

The protection of the scenic features and the development of the recreational use of the lands are being taken care of in the national forests. Some of the most unusual scenic areas in the forests are best suited to a full park administration. The bulk of the forest areas, however, should continue in their present status, where they will be fully protected and developed for recreation purposes as a part of the forest administration. The extensive road building, made possible by the $10,000,000 recently appropriated, will open them up rapidly.

An added cause of confusion is the fact that national parks and national forests are administered by two executive departments. While there is an effort to co-operate, nevertheless difficulties arise which could be wholly avoided if they were under one department. Unquestionably the administration of the forests should remain in the Department of Agriculture, because of the close relationship of the work of the Forest Service to the activities of other bureaus of the same department, such as the Bureau of Plant Industry, Bureau of Animal Industry, Office of Public Roads and Rural Engineering, Bureau of Soils, Bureau of Biological Survey, and the Bureau of Entomology. Obviously, there are in the forests many problems relating to live-stock, plant growth, predatory animal and insect control, soil conditions, and road and trail work. These great bureaus are directly and intimately concerned with these problems. If the forests were transferred to another department, that department either would have to duplicate these bureaus in part or would have all the difficulties of co-operation with another department which seem to be inherent. Whether the National Park Service should be transferred to the Department of Agriculture is a matter for consideration. If the transfer should be made, it would be unnecessary and, in my judgment, unwise to consolidate the work of the two services. The park service should take its place in the organization of the department as an independent bureau, with its activities closely related to those of the Forest Service. Certainly, if the two services are to be administered by different departments, there should be the closest co-operation throughout. Such co-operation should include not only the question of the creation of new parks out of national forests, but also fire protection on contiguous properties, game preservation, road building, and other activities.

∴

Recreation in the National Forests of California

During the season of 1916 the Forest Service distributed 90,000 recreation maps of nine national forests in California to those planning trips to these forests or to others interested. These maps, prepared by the Service, give detailed information about trails, roads, camping-places, supply-stations, resorts, and points of scenic interest, and also furnish concise histories and descriptions of the forests.

Fifteen thousand copies of the *Handbook for Campers in the National Forests in California* were also distributed. This is an interesting and useful pamphlet of forty-eight pages, prepared by the Forest Service. After a foreword, which explains the absence of restrictions on camping, hunting, and fishing in the national forests (except such restrictions upon hunting and fishing as are imposed by the state fish and game laws), a brief description of the forest areas of California and of each particular national forest is given. Some space is devoted to enumerating desirable clothing, camp equipment, and rations for camping in the national forests of California. Elaborate instructions are given in building campfires, in camp-cookery, in packing (including figures showing how to tie both the ranger-hitch and the bedding-hitch), in first aid in the case of accidents, in fire-fighting, and in the laws pertaining to fish and game, including a separate abstract of California fish and game laws, which is supplied by the State Fish and Game Commission. This interesting little pamphlet ends with useful miscellaneous information, varying from the care of chafed heels to instructions to persons lost in the California mountains.

The entire stock of both recreation maps and of campers' handbooks has now been exhausted, so great has been the demand for these. Unfortunately, the appropriation of the Forest Service is not sufficient to permit a new edition to be published at the present time. The members of the Sierra Club can help to promote the recreation use of our splendid national forests by urging their Congressmen to have added to the next appropriation for the U. S. Department of Agriculture a special fund for this purpose.

∴

TAHOE-YOSEMITE TRAIL

The following description of the Tahoe-Yosemite Trail Project is taken from a memorandum by District Forester Coert Du Bois:

The Tahoe-Yosemite Trail is a Forest Service project. . . . The purpose of the trail is entirely public. It is proposed to afford an easy and attractive route from the Lake Tahoe region to the boundary of the Yosemite National Park. Probably before it is completed the National Park authorities can be induced to complete the link between the head of Jack Main Cañon and Tuolumne Meadows, which when done will connect the Tahoe-Yosemite Trail with the John Muir Trail and make possible a pack-trip over a well-graded trail from Summit, on the Southern Pacific Railway, to Mount Whitney.

Instructions and specifications have been worked out in considerable detail and mimeographed, and copies will be placed in the hands of every officer or employee responsible in any way for construction or supervision on the trail. These specifications are in brief as follows:

> 1. *Grade*—Standard, 15 per cent; maximum, 20 per cent. Reverse grades allowable only when their avoidance would add 10 per cent to the cost.
>
> 2. *Clearing*—Standard, 3 feet; maximum, 5 feet. All brush piled for burning except through heavy brush-fields on steep sidehills with no openings, where the cost of piling and burning is clearly prohibitive.
>
> 3. *Tread*—Standard, 15 inches in solid ground; minimum, 12 inches; maximum, 24 inches.
>
> 4. *Drainage*—Waterbreaks when necessary.
>
> 5. *Corduroy*—When necessary over boggy places, embedded-log corduroy with sill will be used.
>
> 6. *Rock Walls*—Rock walls will be used where their construction is cheaper than blasting or digging the tread from the surface in place.

A distinctive sign-heading will be adopted for the Tahoe-Yosemite Trail. It is suggested that in addition to the name of the forest all signs along the trail carry the name of the trail. Direction signs will be needed wherever lateral or intersecting roads or trails are met; and distance signs throughout should give the distance and direction to the next camping-ground or fenced pasture. Signs should also indicate all points of topographic and historic interest, such as peaks, emigrant trails, etc. Signs giving the name of the watersheds left and entered should be at all passes, and all creeks and lakes should be signed up with their proper names. Signs should be placed at county boundaries and at national forest boundaries. Signs should be placed at the points where the trail enters and leaves meadows. Where the trail crosses open country on the summit it must be indicated by ducks. It is suggested that a distinctive duck be developed, consisting, possibly, of three rocks about eight inches in diameter as a base and one rock about six inches in diameter on top. This will distinguish the Tahoe-Yosemite Trail from the innumerable trails through the high country.

I have a strong idea that such trails as the Tahoe-Yosemite Trail and John Muir Trail are going to be very popular in the future. Already every possible camping- and recreation-ground that can be reached with a Ford is getting overcrowded. The tendency is to get away from the crowd and take either a knapsack-trip or a pack-trip into the high country.

The project will not end with merely building a trail and putting proper signs along it. Properly fenced meadows must be supplied at very frequent intervals. I should say that horse-feed sufficient for at least ten horses for three nights should be available on the average for every three miles of trail. It is impossible to foresee where travelers will want to camp, and one camp-ground being occupied there should be another so close to it that the travelers will have no difficulty in going on to the next one. The ultimate development of the trail will include rest-houses and locators at the high points, similar to those installed on Mount Tamalpais.

The policy will be to work out this project gradually, concentrating the annual expenditures on the worst places and bringing each stretch worked upon up to the standard specifications as stated herein. Later on, the stretches which are now fairly good will be worked up to standard. There is no intention whatever of rushing this through to completion or making large expenditures on it immediately; but it is a job which the Service has undertaken, and which it is hoped very much will be carried through to satisfactory completion in a few years.

During the field season of 1916 an expenditure of $4990 was made on the Lake Tahoe section, where the trail was completed up Meeks Creek past the Talent Lakes to Velma Lakes. About four miles remains to be built to close the gap from Velma over Dick's Lake summit to Susie Lake. The trail is completed from Susie Lake to Desolation Valley with the exception of a very short stretch, and even this is passable for horses.

On the Stanislaus section $2020 was expended and the trail was completed from the head of Disaster Cañon to the east end of Iceberg, approximately six miles.

BOOK REVIEWS

Edited by Marion Randall Parsons

◆

"A Thousand-Mile Walk to the Gulf"*

"Hungry and happy and hopeful" were his days at the University of Wisconsin, Mr. Muir tells us, when he bade it farewell to enter the "University of the Wilderness." Equally happy and hopeful, and even more hungry, were the days of his "Thousand-Mile Walk to the Gulf," the first of his more extended wilderness wanderings. In September, 1867, Mr. Muir started on his walk, through Kentucky and Tennessee and across a corner of North Carolina and all of Georgia to Savannah. There he took ship for Fernandina, a town on the border of Florida, and tramped across that "land of flowers" to Cedar Keys on the Gulf of Mexico, where he hoped to find a ship that would carry him to South America. In this disordered and lawless South of post-bellum days bands of guerillas threatened the whole country; a stranger was looked upon with suspicion and often given grudging hospitality; and hungry, desperate negroes lurked everywhere, ready to "kill a man for a dollar or two." Sometimes Mr. Muir lay out in the open in swamps, not daring even to light a fire for fear of drawing the attention of some marauder; often he walked fasting—"traveled today more than forty miles without dinner or supper" is one entry. It is hardly surprising, therefore, that he contracted the fever which might have ended his life, and which did materially change its whole course. On his recovery, he left Florida for Cuba, thence sailing for New York, and then by way of Panama to California.

This book may be said to form the second volume of Mr. Muir's autobiography, for it covers the period between *My Boyhood and Youth* and *My First Summer in the Sierra.* Dr. Badè has wisely included a California chapter—"Twenty-Hill Hollow"—not originally a part of the Florida journal, which makes the link complete. This delightful narrative is the first volume of his unrevised journals to be published since Mr. Muir's death, and it holds rich promise of literary treasures yet to come. The journal, however, cannot altogether be classed as "unrevised," for it bears the unmistakable stamp of Mr. Muir's more mature thought and style, even though the typewritten copy from which the material was principally drawn was little more than a first draft of the projected book. Mr. Muir often told me that he intended to turn his attention to the Florida journal immediately after the Alaska travels.

The book is full of charm and youthful enthusiasm, the register of a sensitive, alert mind, open to every new impression. He delighted to "ride over this unsullied country of ever-changing water," or to "cling to a small chip of a ship when the sea is rough, and long, comet-tailed streamers are blowing from the curled top of every wave." The California plains were "the floweriest piece of world I ever walked." Even the prosaic jack-rabbit seemed to him to move "swift and effortless as a bird shadow," and January weather "grows in beauty like a flower." He exulted in the winds, even those of Florida, though they "no longer came with the old home music gathered from open prairies and waving fields of oak, but passed over many a strange string."

---

* *A Thousand-Mile Walk to the Gulf.* By John Muir. Edited by William Frederic Badè. Houghton Mifflin Company, Boston and New York. 1916. Price, $2.50. Illustrated. Large paper edition, $5.00.

The editor's work has been done with such sympathy that the whole book breathes of Mr. Muir's own personality, with no intrusive sense of an alien hand. Less happy, however, is the make-up of the volume. We regret that the clear-type, wide-margin pages could not have been given a more dignified outer dress, like that of the admirable large paper edition. M. R. P.

∴

"THE KLONDIKE CLAN"* One finds it rather difficult to characterize this book, whether it should be classed as a work of fiction or as a narrative of adventure. The author himself says of it: "The incidents are more history than fiction. The characters are types. . . . Many of the adventures of the story occurred under the personal observation of the author or that of his friends." We are inclined to feel that a simple narrative of personal experience would have been even more effective than this admirable romance of the Klondike stampede, especially after reading the author's earlier published book, *Alaska Days with John Muir*. When the reality is so rich in romance and heroism one feels that a really great book is lost to the world when a man of Mr. Young's qualities fails to give the simple, direct narrative of his Alaska experience. We hope that some such story of his many years of life and work there may yet appear.

To the lover of tales the book as it stands is more than worth while. The hardship, the humor, the folly, and the tragedy of gold-rush days are stirringly depicted. The characters are human and likable. We quote one story of a missionary's disastrous dependence upon an interpreter. The Parson had found some difficulty in explaining what sheep were like when he went over the text of the twenty-third Psalm with his interpreter, only succeeding after "Billy" had grasped the idea that they resembled the wild goats which the Indians hunted. "I noticed a queer look on the stolid faces of the natives as Billy interpreted my sermon," says the Parson, "but until I had learned the language myself I was ignorant of Billy's rendering of the verse. Here it is: 'The Great Chief above is the goat-hunter who hunts me. I do not want him. He shoots me down on the green grass and drags me down to the quiet sea-beach.'" As one of the characters observes, "Mony is the meenister of the kirk who comes no nearer the sense of Scripture." M. R. P.

---

* *The Klondike Clan.* A Tale of the Great Stampede. By S. HALL YOUNG. Fleming H. Revell Company. Price, $1.35 net. Illustrated.

⁂

"THE TOURIST'S NORTHWEST"* A comprehensive guide-book of the northwest, giving modes of access to most of the mountain regions of Oregon, Washington, Idaho, and British Columbia, with detailed accounts of roads, railroads, and steamer routes, and many items of historical interest. The bulk of the book is given over to the scenic features and outdoor life, though cities and hotels are also touched upon. A splendid aid to travelers. Well illustrated with maps and photographs. M. R. P.

⁂

"THE MOUNTAIN"† The book is well printed, artistic in appearance, and easy to read because of the beautiful type and wide margins. The topic scheme on the margin makes it easy for reference. Mr. Van Dyke is an artist in feeling and in the use of the English language. He is a word-painter *par excellence.* While the title of the book is *The Mountain,* and the descriptions are adequate, the heart of the writer is most at home in those scenes where he is dealing with the desert. It is in the desert description that he rises to his highest point of excellence. You feel the stretches of sand and the shimmering lazy sunshine, the dreaming hills that sweep toward the horizon, and the smell of sagebrush. You catch the fragrance of the desert air. The one word which would describe, possibly, better than any other Mr. Van Dyke's ability and method of description is *atmosphere.* It would be unfair to him to say that he does not know the mountains, or that he does not describe them adequately, for he does. He is a poet, and he sees everything through a poet's eyes. While he has climbed the snowy peaks and become acquainted with the terrors of the glacier, you somehow feel that he does not thrill with the joy that delights the intrepid climber who scales the precipitous heights and triumphs over difficulties which make up so large a part of the life of the adventurous mountaineer. He talks most familiarly of the Himalayas, the Alps, the Caucasus, the Rockies, or our own beloved Sierra, with equal facility, and he leaps from one to the other with the agility of a chamois. His pictures are always fascinating. He is a lover of nature. He loves the birds and the woods and the song of the winds, and he makes you realize that the mountains are not all made up of inaccessible peaks. While his viewpoint is not entirely that of an impressionist, he has beyond question the impressionistic tendency. You love the mountains better for having read him, but somehow you feel that his scientific explanations are not entirely satisfactory. In other words, Mr. Van Dyke is first, last, and always an artist. His descriptions are full of color, full of sunshine, full of the flashing gleam of high mountain-tops, full of the roar of cataracts and waterfalls. He lacks the intimate knowledge of John Muir and the science of Joseph Le Conte, but his book in every way is worthy of consideration.

---

* *The Tourist's Northwest.* By RUTH KEDZIE WOOD, F. R. G. S. Dodd Mead & Company, New York, 1916. Price, $1.75. Illustrated.

† *The Mountain.* By JOHN C. VAN DYKE. Charles Scribner's Sons, New York, 1916. Price, $1.25.

George C. Thompson

∴

"Wild Life in the Rocky Mountains"*

Wild Life in the Rocky Mountains, by George Frederick Ruxton, is the story of the author's trip, during the winter of 1846-1847, from Chihuahua, Mexico, up along the Rio Grande to Pueblo, Colorado, where he spent a number of months in companionship with the mountain trappers and hunting in the "Bayou Salado." Thence, in May, 1847, in company with a wagon-train, he proceeded easterly to Fort Leavenworth, Kansas, and from there, by river steamer, train and boat, back to England, arriving in August. He returned again almost immediately to the wilds of the United States, only to die in St. Louis, in September, 1848, at the age of twenty-eight. The season of the year, the wild life and beauty of the country, the romance of the period, the danger of the undertaking, and his hairbreadth escapes, both from the severity of the weather and from scalping by the Indians, combine to make the interest of the book. The description of the blizzard in South Park, in which he spent the night kneeling in the snow with a saddle-blanket over his head and his head pressed to his knees, smoking a pipe which finally "caught fire and burned completely to the stem," his mules groaning aloud, falling down in the snow, and then again struggling on their legs, gives one a good picture of the wildness of the time as well as an insight into the character of the writer.

The descriptions of wild life are interesting, and in their number symbolic of the period. The buffalo, the grizzly bear, the elk, the bighorn, or mountain-sheep, the antelope, the wolf, the beaver, and even the little prairie-dog, are among the animals described with whom he seemed to have an intimate acquaintance. The book gives the atmosphere of the times and is well worth reading.

Daisy C. Huber

∴

"Camping and Woodcraft"†

"An encyclopedia of information on living in the open" is the publisher's foreword. There is a multiplicity of detail, somewhat bewildering both to the tenderfoot and to the seasoned camper, but very good to use as a reference in making selections. Rough and ready western mountaineers will not be likely to need many of the comforts suggested by Mr. Kephart, but any one of them will enjoy the capital skunk story told in the course of the narrative.

H. M. Le Conte

---

* *Wild Life in the Rocky Mountains.* By George Frederick Ruxton. Outing Publishing Company, New York, 1916. Price, $1.00.

† *Camping and Woodcraft.* By Horace Kephart. Outing Publishing Company, New York, 1916. Price, $1.50 net.

"CHRONICLES OF THE WHITE MOUNTAINS"* A handsome volume of four hundred pages. Beginning with Indian lore and first settlements, then historical events, carrying the latter down to the present day, these first chapters give the pioneer mountaineer of the west a good idea of the value of preserving the slowly gathering mountain lore of our own region. The actual climbs and discoveries, as well as the summer and winter experiences, are linked with a long list of noted names, dear to all eastern climbers, and including the pioneer innkeepers who were largely instrumental in making the history of the Range. The founding, in 1876, of the Appalachian Mountain Club, at the call of Professor E. C. Pickering, and with Professor C. E. Fay in the chair, "marks the beginning of a new epoch in the exploration, study, and pleasure use of the White Mountains." The chapter on "Lumber Industry and Forestry" is the usual story of waste followed by intelligent conservation. Happily the Appalachian Club now owns and controls many of the beauty spots of the White Mountains. H. M. LE CONTE

⁂

"BLACKFEET TALES OF GLACIER NATIONAL PARK"† In his *Blackfeet Tales of Glacier National Park* James Willard Schultz tells in diary form how, after a lapse of many years, he spends a summer wandering through Montana National Park with his old friends and foster-brothers, Yellow Wolf, Two Guns, Stabs-by-mistake, and Tail-feather-coming-over-the-hill. After days spent in hunting, moving camp, or religious ceremonies, the Indians entertain their white foster-brother by camp-fire legends of their tribe. We learn how "elk-dogs," or horses, were first given to man; we admire the skill and bravery of New Robe when he rescues his captive friend by running full speed over the seven freshly skinned buffalo-skulls; we are glad when the jealous wife drowns in the "swim of hate" which she had herself proposed to her unoffending rival; we can almost excuse the treachery of the Bad Wife, so plain is it that a sudden and overwhelming passion for the handsome stranger blinds her to all sense of right and wrong.

Coming, as they do, straight from the lips of the natives and couched in simple but picturesque phrase, these tales sparkle with a freshness and naïve charm that no one—not even the lover of the modern psychological novel—could resist. Here we have real and living men, women, and children—and, yes, even gods, who convince us of their existence by the way they talk and act, by the very force of the primitive passions which sway them, by the universality of their appeal. FLORENCE ATKINSON

---

* *Chronicles of the White Mountains.* By FREDERICK W. KILBOURNE. Houghton Mifflin Company, Boston and New York, 1916. Price, $2.00 net. Illustrated.

† *Blackfeet Tales of Glacier National Park.* By JAMES WILLARD SCHULTZ. Houghton Mifflin Company, Boston and New York. 1916. Price, $2.00 net. Illustrated.

"YOSEMITE: AN ODE"* The attractive manner in which Mr. Sterling's Ode is presented will at once commend it to all lovers of Yosemite. On the cover is an excellent reproduction of a painting by H. J. Breuer in which the artist has shown a welcome restraint, both in color and in drawing. Within are five well-chosen illustrations from photographs by W. E. Dassonville, each with a delightful note of its own. The first brings out the sweep of the great precipices and the vast depth of the valley; in the second the graceful beauty of Yosemite Falls is enhanced by the exquisite texture of meadow, river, tree, and cliff that surrounds it; next comes a view of Bridal Veil Falls, its pendent shaft of whiteness balanced by the dark column of a pine; the fourth illustration is a twilight study in strong lights and shadows, with a foreground of unusual beauty; and, lastly, the splendor and magnificence of Yosemite scenery is illustrated in a superb view of Half Dome at sunrise.

The poem, composed in a lofty and dignified style, is a tribute to the spirit of Beauty as exemplified in the various aspects of the incomparable valley. Many of the descriptive passages cannot fail to delight the "inward eye" of all who read, as when we are invited to

"Ascend at dawn to that uplifted place
Whence the doomed torrent, from its eyrie leaping,
Takes virgin vesture and immortal grace.
Beauty surpassing all!
Splendor of whiteness, foam of pearls that crash
To rainbow-mist on barriers immense!
Iris and veils of amethyst that lash
The eternal granite in magnificence!
Can eyes behold you save with rapture wet,
Or turn them from your glory and forget?"

It is not easy to rhapsodize on the grander aspects of natural scenery, and especially in Yosemite one is bound to feel the inadequacy of anything that poets may say. Acknowledging this at the very outset, the poet would nevertheless offer his tribute, humbly praying that through it there may be revealed to him

"Some aspect of thine inner loveliness
Or instant blaze
Of sunlight on the marbles of thy truth."

F. P. F.

∴

"ON ALPINE HEIGHTS AND BRITISH CRAGS"† George D. Abraham, in his *On Alpine Heights and British Crags,* makes us acquainted with a series of climbing incidents in both Switzerland and Britain. For those in love with horripilant narrative no better book could be found. The author with his companions seems to observe a high *pic* as a problem to be solved, and they proceed to the solution thereof with *scarpetti,* ropes, ice-axes, and a tremendous amount of faith and courage. Many an exciting incident befalls them. Yet by the constant use of wisdom no mishap must be recounted. Not only do they mount to the summits themselves, but, in spite of the objections of the guides, do they haul up in some miraculous manner a heavy photographic equipment. For this effort the reader may be grateful. The photographic reproductions are among the most remarkable to be found anywhere. The author's style is humorously thrilling—to witness: One day an opposition party was climbing the same peak. There had been an accident among the rivals. Stones drop ominously. A form like a human body comes bouncing downward—bump, bump! They are horrified to see the tell-tale trail of red on the white snow. At their very feet the body ceases to roll, and they recognize a huge ruck-sack with a broken flask of claret!

---

* *Yosemite: an Ode.* By GEORGE STERLING. With a cover in color after the painting by H. J. Breuer and illustrations after photographs by W. E. Dassonville. A. M. Robertson, San Francisco, 1916. Price, 75 cents.

† *On Alpine Heights and British Crags.* By GEORGE D. ABRAHAM, author of the *Complete Mountaineer* (see SIERRA CLUB BULLETIN, Vol. VII, No. 1). Houghton Mifflin Company, Boston and New York. Price, $2.50 net. With 24 illustrations from photographs.

The second part of the book is on "British Crags." The tyro yearning for future success in Switzerland contents himself with sensational winter climbing when his fingers and toes are so frozen he can scarce clutch the tiny footholds and handholds. Next he betakes himself to the less better-known rocks of Wales. To read a list of Welsh proper names is in itself a dangerous excursion filled with pitfalls, crevices, *couloirs,* escarpments, ledges, slabs, buttresses, and other troubles. Come with me, then, to scale Cwm Cywion, Mynydd-Trwsgwl, Bwlch y Drws y Coet—from all accounts a most imposing group of rocks where one can have climbing equally as thrilling and healthy and thoughtful as any in Switzerland.

LENA REDINGTON CARLTON

∴

"RAMBLES IN THE VAUDESE ALPS"*

Rambles in the Vaudese Alps consists of a month's climbing, botanically, in the valley of the Rhone at Gryon, not far from the famous St. Moritz. The author is most ardent in his scientific discoveries. His notes on the flora of the district and his observations on the habits of plants in general are chiefly of interest to botanists, particularly to English botanists, for his comparisons are ever with the conditions of the same plants as they grow in Britain. Aside from the science of the volume, there are, too, bits of life as seen in Switzerland—descriptions of the chalets with their eave-protected balconies, the flat-chested women and girls, knitting as they tend the family cow, the leaves drying about the doorstep, to be used for lighting winter fires, etc. But the reviewer feels that the scientific interest outweighs the travel interest. It would be a charming book to take with one should one be fortunate enough to make the same journey in the cantons of Vaud and Vallais.

LENA REDINGTON CARLTON

---

* *Rambles in the Vaudese Alps.* By F. S. SALISBURY. E. P. Dutton & Co., publishers. $1.00 net. 152 pages. Eight full-page illustrations from photographs by Somerville Hastings.

“California Place Names of Indian Origin”[*] In his introduction to this very interesting list of Indian names, Professor Kroeber says: “The origin of many place names in California which are of Indian derivation is very imperfectly known, and has often been thoroughly misunderstood. There is no subject of information in which rumor and uncritical tradition hold fuller sway than in this field. The best literature dealing with the topic—and it is one of widespread interest—contains more errors than truths. The present compilation, in spite of probably embodying numerous misunderstandings and offering only doubt or ignorance on other points, is at least an attempt to approach the inquiry critically.” Many names that are listed are of special interest to our readers, as may be seen from the following examples:

> Hetch Hetchy Valley, in the famous cañon on Tuolumne River, is named from a Central Miwok word denoting a kind of grass or plant with edible seeds abounding in the valley.
>
> Koip Peak, between Mono and Tuolumne counties, is probably, like near-by Kuna Peak, named from a Mono Indian word. *Koip* is “mountain sheep” in the closely related Northern Paiute dialect.
>
> Kuna Peak, between Tuolumne and Mono counties, is probably named from the Shoshonean word *kuna,* usually meaning “fire,” but appearing in the Mono dialect of the vicinity with the signification of “firewood.”

⁂

“The Book of Forestry”[†] *The Book of Forestry,* by F. F. Moon, covers the field in a brief, interesting, and non-technical way which is very acceptable to the general reader. Although written particularly for boys, it should prove of decided interest and value to older readers. Some of the topics considered are the meaning of forestry; the usefulness of forests; the life-story of the tree; the properties and uses of wood; the methods of raising, protecting, measuring, and harvesting crops of timber; the life of a forester; city forestry. Part II is a description of such characteristics of trees and of the various kinds of wood as are of help in identifying trees and commercial timbers. A glossary of technical terms is appended.

It is perhaps unfortunate that some of the statements are somewhat too dogmatic. For example, “Forestry is not agriculture, because agriculture has to do with tillable fields and level lands.” If, as has been done, we define agriculture as the production of living things from the soil, then forestry is a part of agriculture. That this point of view is accepted by many is shown by the fact that so large a proportion of the managed forests of the world are administered by departments of agriculture. In points so open to argument, it would seem that it would have been well for the author to state both viewpoints.

---

[*] *California Place Names of Indian Origin.* By A. L. Kroeber. University of California Publications in American Archæology and Ethnology, Vol. 12, No. 2, pp. 31-69. Price, 40 cents.

[†] *The Book of Forestry.* By Frederick Franklin Moon. D. Appleton & Co., New York and London. 1916. Price, $1.75. Illustrated.

The carelessness in making misleading or imperfectly explained statements, and in faulty proof-reading, which seems to be altogether too common in American books on forestry, appears again here to a slight extent, but not in nearly so pronounced a form as in some previous works. An example is the statement on page 196, that "the Sequoias are found *largely in California*"! The use of various equivalents for red fir and *Pseudotsuga taxifolia* must be confusing to the beginner. The author on page 290 states that red fir is *Abies magnifica*, on page 283 that red fir is *Pseudotsuga taxifolia*, and on page 195, in a description of *Pseudotsuga taxifolia*, the heading is "Oregon fir," and the same tree is referred to lower on the page as Douglas fir. All of these statements are in accordance with common usage, but without explanation they are confusing to the reader unfamiliar with the variation in the use of tree names. Some misprints occur.

It is also to be regretted that, probably because of the greatly increased cost of book-making, the book is rather poorly printed and does not make so favorable an impression as the price would lead one to expect.

W. M.

⁂

"The Mountaineer" Volume IX*

The Mountaineers' annual publication maintains the high standard of its predecessors. The Mountaineers' activities in 1916 were centered mainly about Mount Baker, and most of the articles in their annual are related in some way to this mountain. Mrs. L. R. Frazeur, well known to several Sierra Club outings, describes The Mountaineers' climbs last year of Mount Baker and Mount Shuksan. Charles Finley Easton contributes an interesting and valuable account of Mount Baker's glaciers. Other articles—on early explorations of Mount Baker, on Indian legends connected with the mountain, on the wild animals of the region, on neighboring points of scenic interest—complete a well-rounded survey of Mount Baker from the point of view of the mountain-lover's interests. *The Mountaineer* devotes considerable space to the activities of other mountaineering clubs—a valuable feature.

A. H. A.

⁂

"Through Glacier Park"†

The first impulse of a normal Sierran upon reading Mrs. Mary Roberts Rinehart's little book will be to buy a ticket at the first opportunity for the Glacier National Park, in the hope of seeing the things which Mrs. Rinehart saw, and in the hope of meeting Howard Eaton. "Howard Eaton," says Mrs. Rinehart, "is extremely young. He was born quite a number of years ago, but what is that? He is a boy, and he takes an annual frolic. And because it means a cracking good time, he takes people with him and puts horses under them and the fear of God in their hearts, and bacon and many other things, including beans, in their stomachs. . . . He is a hunter, a sportsman, and a splendid gentleman." Such was the guide who conducted the party of whom Mrs. Rinehart was one. It surely is a privilege to make a tour of Glacier Park with such a man.

---

* *The Mountaineer*, volume IX. Published by The Mountaineers, Seattle, December, 1916. 112 pages. Price, 50 cents. Illustrated.

† *Through Glacier Park: The Log of a Trip with Howard Eaton.* By Mary Roberts Rinehart. Houghton Mifflin Co., Boston and New York. 1916. Price, 75 cents. Illustrated.

Mrs. Rinehart does the tour justice; she enjoyed every minute of the three-hundred-mile trip, and she makes it enjoyable for others to read about. The book can be bought for a small price and read in a short time, and the return in enjoyment for the time and money invested in it will be just about one thousand per cent. A. H. A.

⁂

"ALASKAN GLACIER STUDIES"* The National Geographic Society published in 1914 the results of its explorations of glaciers in the Yakutat Bay, Prince William Sound, and Lower Copper River regions of Alaska. The field-work was done in 1909, 1910, 1911, and 1913, and the report is by Professor R. S. Tarr, formerly of Cornell University, and Professor Lawrence Martin, of the University of Wisconsin. It would be impossible to give an adequate account of this exhaustive report in the space available for this belated notice, nor would a thorough analysis of it be appropriate, perhaps, in this BULLETIN. Each glacier in the region named is studied in detail over a period of years, its activities measured and recorded, and fully described. The report is lavishly illustrated with half-tones and drawings, and with a set of nine excellent colored maps. A. H. A.

⁂

The Journal of Agriculture of the University of California has issued a special Forestry number which is extremely attractive and interesting. It contains seventeen excellent contributed articles from officials high in rank in the Federal service, from private lumbermen, from educators and others. It also contains some interesting notes of the Agricultural Department of the University of California.

⁂

A book of *Songs of the Sierra Club* has been published, and is on sale at the club-room—price, ten cents, or, with postage, twelve cents. Our outing members will find in it many songs to recall camp-fire days.

---

* *Alaskan Glacier Studies of the National Geographic Society. . . .* By RALPH STOCKMAN TARR and LAWRENCE MARTIN. The National Geographic Society, Washington. 1914. Illustrated.

NORTHWESTERN PACIFIC

Traverses Marin, Sonoma, Mendocino, Trinity and Humboldt Counties, the territory that appeals to the hiker and lover of primitive out-of-door sports

---

A & E

EVERY TWO HOURS

during the day, a fast electric train leaves
San Francisco, Key Route Ferry Depot

to SACRAMENTO

Fast comfortable service through some of
the prettiest spots in Central California.

Write for Time Table and Rates

OAKLAND, ANTIOCH & EASTERN
RAILWAY

L. H. RODEBAUGH, Traffic Manager
OAKLAND, CALIFORNIA

The
Ellery Arms
Company
583-85 MARKET ST
SAN FRANCISCO, CAL
THE SIGN OF QUALITY

The "Been There"
Outing Goods Store

Devoted exclusively to the needs of sportsmen and sportswomen—with 35 years of progressive camp experience to assist

OUR SUITS ARE IN EXCLUSIVE STYLES

Fashioned with "character" from standard government grade khaki to the famous auto woolen—appropriate, practical and fairly priced

ELLERY HIKING BOOTS GIVE GENUINE COMFORT

They also are of our own creation, possessing leather, shape and construction which have made them "standard" to the royalty of the trail

LEARN WHAT ELLERY QUALITY, SERVICE AND PRICE MEANS

Impossible to enumerate the hundreds of seasonable articles that cannot be bought elsewhere, so we invite your inspection, with the reminder that attention to detail has made our establishment

The Largest Outing Supply House in America

☞ Complete outing goods catalogue sent free on request ☜

Ellery-Made
MEANS QUALITY

Some of the High Points of the Pacific Coast

The Pacific Coast is Nature's Exposition, two thousand five hundred miles long, of wonderful climate, wonderful scenes, wonderful products

Tahoe—"The Mile High Lake" in the heart of the Sierras.

Yosemite—Its domes and cliffs, its flowered meadows, its glorious waterfalls. To miss Yosemite is to lose a delightful experience.

Mariposa Big Trees—The oldest living things. Ideal trees, impressive in size and symmetry.

Kings and Kern Rivers Canyons, with Sequoia and Grant National Parks, at summit of Sierras—a vast and rugged region to tempt the sportsman and mountaineer.

Santa Cruz Mountains and Big Trees, and California State Redwood Park—4000 acres of virgin forest.

Crater Lake National Park and the Klamath Lakes country—Oregon's marvelous tourist ground and sportsman's paradise.

Mount Shasta, Mount Lassen (the only active volcano in the United States), the Siskiyous, Mount McLoughlin, Mount Jefferson, Mount Hood, Mount St. Helens, Mount Adams, Mount Rainier, Mount Whitney (our highest peak), Mount San Jacinto, Mount San Gorgonio, Mount San Bernardino, Mount Lowe, Mount Wilson.

ALL ARE REACHED VIA LINES OF

Southern Pacific

Write for Folder on the Apache Trail of Arizona

PRINTED BY TAYLOR & TAYLOR, SAN FRANCISCO

SIERRA CLUB BULLETIN

VOLUME TEN
NUMBER THREE

SAN FRANCISCO
JANUARY
1918

National Museum

PUBLICATIONS OF THE SIERRA CLUB
NUMBER FIFTY-THREE

SIERRA CLUB BULLETIN

FOUNDED 1892

Edited for the Club by
WILLIAM FREDERIC BADÈ

JANUARY, 1918

VOL. X CONTENTS No. 3

Plate CLXXXVI. Robson and Tumbling Glacier. *Frontispiece*

A WEEK AROUND MOUNT ROBSON *Marion Randall Parsons* 269
Plates CLXXXVII, CLXXXVIII, CLXXXIX, CXC, CXCI, CXCII

RECORD OF AN EARLY EXPLORATION OF TENAYA CAÑON *J. N. Le Conte* 276

THE WHITE MOUNTAINS OF CALIFORNIA *Willis Linn Jepson* 282
Plates CXCIII, CXCIV

MOUNTAIN CLIMBERS *Aristides E. Phoutrides* 286

THE CLIMB OF DUNDERBERG VIA VIRGINIA CAÑON *George C. Thompson* 287
Plates CXCV, CXCVI, CXCVII, CXCVIII, CXCIX, CCXVI, CCXVIII CCXIX

KNAPSACKING IN THE KINGS-SAN JOAQUIN REGION *A. L. Jordan* 292
Plates CCIII, CCV

THE JUNIPERS OF LAKE VALLEY *Cornelius Beach Bradley* 298
Plates CC, CCI, CCII, CCIV

STUDIES IN THE SIERRA *John Muir* 304
IV. GLACIAL DENUDATION

ORGANIZATION OF THE SIERRA CLUB 319

WAR SERVICE RECORD 320

EDITORIALS 322

REPORTS OF COMMITTEES 326
Plates CCVI, CCVII

NOTES AND CORRESPONDENCE 332
Plates CCVIII, CCIX, CCX, CCXI, CCXII, CCXIII, CCXIV, CCXV

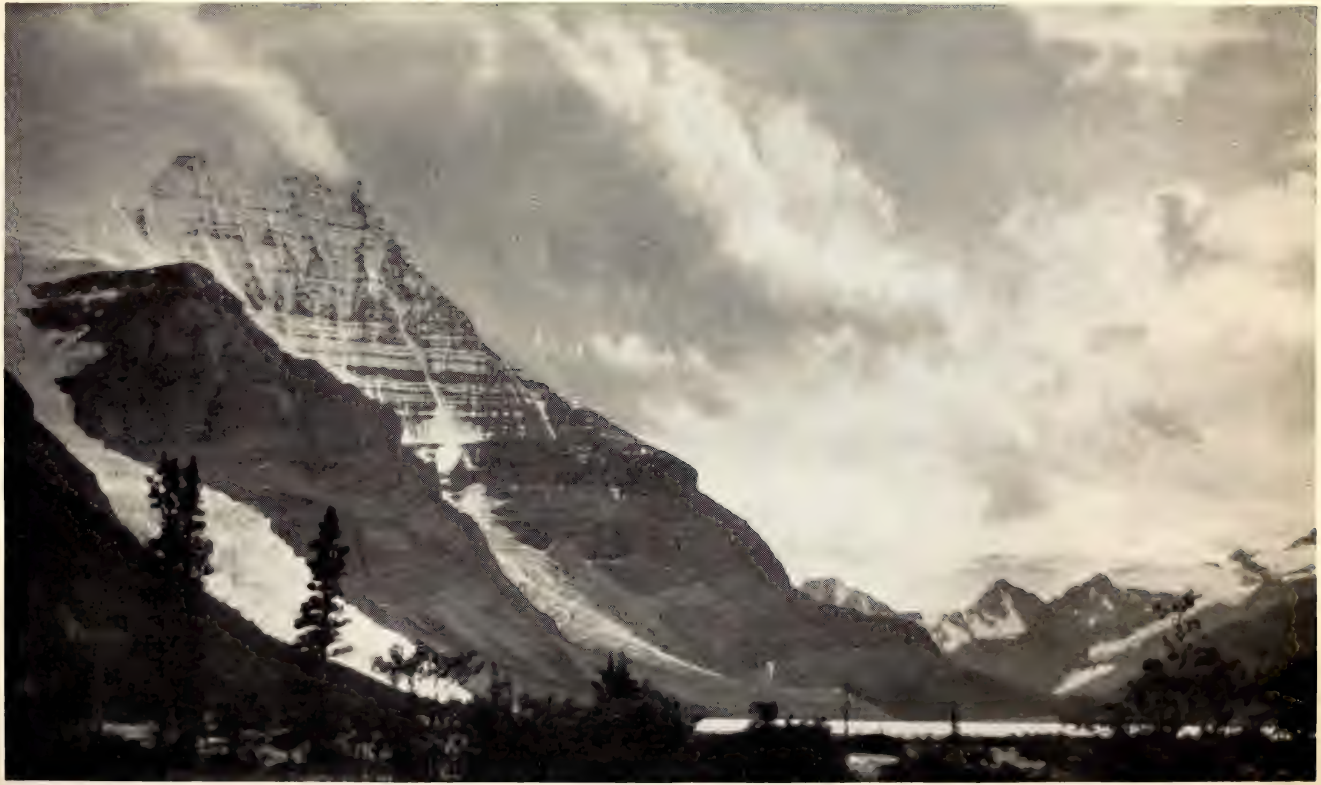
NATIONAL PARK NOTES 362

FORESTRY NOTES 373
Plate CCXVII

BOOK REVIEWS 379

Correspondence concerning the distribution and sale of the publications of the Club with reference to advertising rates and space location, and concerning its business generally, should be addressed to the Secretary of the Sierra Club, Room 402 Mills Building, San Francisco, California.

PRICE, 50 CENTS PER COPY



ROBSON AND TUMBLING GLACIER
Photo by Marion R. Parsons

SIERRA CLUB BULLETIN

VOLUME TEN
NUMBER THREE

SAN FRANCISCO
JANUARY
1918

National Museum

A WEEK AROUND MOUNT ROBSON

By Marion Randall Parsons

"WHAT is your final destination?" asked the immigration officer. For a wanderer with such indefinite plans the question seemed simpler to answer according to catechism than to geography.

"May I say heaven?" I asked.

"No," said he, not relaxing his official solemnity, "not unless you have a ticket there."

So I gave Jasper Park as the farthest east of my summer destinations.

Jasper Park and Forest Reserve, and the smaller Mount Robson Park on its western margin, lie along the borders of British Columbia and Alberta on the line of the Grand Trunk Pacific Railway. Tributaries of the Fraser, the Athabasca and the Peace rivers rise among the great snowfields that make these two great parks of the northern Rockies a shining glory for mountaineers. The region is also rich in the romance of the great fur trading companies. Jasper House and Henry

House; Jasper Hawes and the "yellowhead" halfbreed whose name is perpetuated in Yellowhead Pass and the Tête Jaune Cache—these are names familiar to all lovers of the early history of the Northwest.

My companion, Miss Lulie Nettleton, and I had only a day at Jasper, the administrative center and principal settlement. There we played the unwonted part of tourists, conveyed about in carriages. From the Tent City on Lake Beauvert we drove to Pyramid Lake and the curiously sculptured and potholed Maligne Cañon. The roads had a novel interest, as they had been built by interned Austrians and Germans the first year of the war. These national parks were created so shortly before war-crippled times that only by such haphazard means has their development been possible.

Lack of roads, however, is no deterrent to mountaineers, but rather the contrary. We had hoped to take a horseback journey to Mount Cavell and over the Athabasca Trail to Maligne Lake, but all our available time was given to the Robson country, where tent cities there are none and trails are almost as negligible. There, in war time at least, is only Donald Phillips, guide, trapper, hunter, cook and king of the whole mountain wilderness.

Donald looked distinctly amused that afternoon, when we descended from the train, demanding in the first breath that he take us up Mount Robson. Donald was one of the Robson pioneers, and since he and Mr. George Kinney made their climb in 1909, only three other men—Captain McCarthy, Mr. F. W. Foster, and their guide, Conrad Kain—have succeeded in reaching the summit. Donald's ascent had been made before the building of the railroad, and they had traveled with a pack-train all the way from Edmonton. In addition to hardships that included three defeats by storms and "ninety-six hours spent above ten thousand feet altitude," they had suffered from a shortage of food. "We ate squirrels till we could taste the stripes," was Donald's vivid way of describing it. Small wonder that his eyes twinkled as he advised us to wait till the clouds lifted and we got a good look at Robson before we decided to climb.

After spending a night at Donald's camp on the Fraser we started out on the trail—riding, rather against our will. But there were swift, strong rivers to be forded and we had no choice. Robson was still cloud-hung, and its great front, streaked with horizontal strata of brown and yellow, and gullied with snow and ice, towered above us, black and menacing, to unguessed heights. Our trail led up the Grand Fork Cañon, through flats of contorta pines, and up among woods of hemlocks and Douglas firs, moss-carpeted like the coast forests.

True alpine scenery began at Kinney Lake, a smooth sheet of robin's-egg blue walled by the shining slope of Whitehorn. The lake lies at the lower end of the Valley of a Thousand Falls. One after another the cascades came into view—slanting obliquely over ledges; dropping in dainty veils of mist, wind-tossed to nothing before they reached the ground; slow-rocketing down from great heights; booming deep in rocky chasms; and above them all the mighty Emperor Falls, pouring down in full sunlight. High above, too, hung the Whitehorn Glacier, with sharp-toothed seracs cutting blue and white gashes in the sky.

Then up into fields of asters and paintbrush we climbed, and through alluring patches of wild strawberries and raspberries, to a valley whose whole floor was filled by the river bed. For half a mile we splashed from one gravel bar to another through torrents of muddy glacier water. It is a curious, and at first rather a terrifying, experience to ride into a river up to the horse's girths. The current swept past with such speed that the laboring horse ahead seemed to be standing still, and only by the heaving sensation could I realize that my own horse was moving.

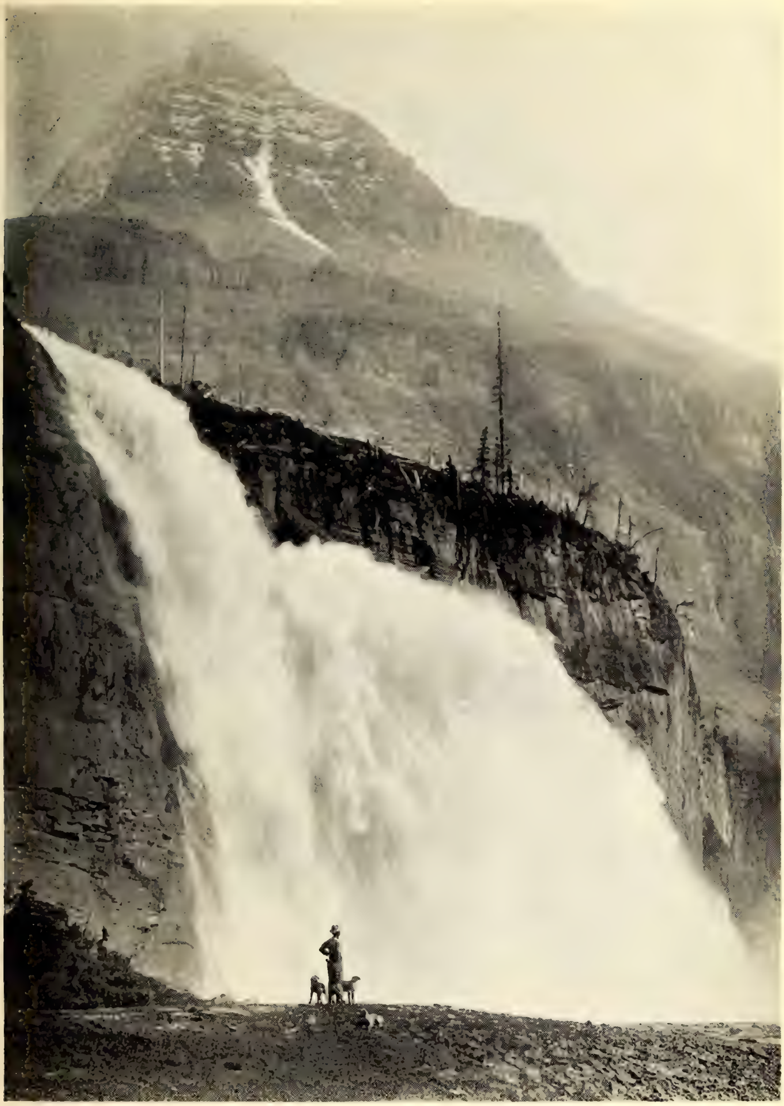
Above this river-trail came a gravelly waste. Fan-shaped deposits from glacial side-streams pushed the river close under Mount Robson. We had rounded the mountain and were now on its northern side. Instead of a wall of rock, as on the southern and western faces, the mountain here was a seamed and shattered wall of ice. The Tumbling Glacier, lost in clouds above, broke off in a sharp white cliff into Berg Lake. A fleet of fairy ice-ships was drifting in it, and as we rode along its shore a crashing avalanche set a host of new bergs afloat.

Just beyond Berg Lake lay our camp at Robson Pass, the site of the Canadian Alpine Club camp of 1913. We started afoot with Donald next morning over the Robson Glacier to Snowbird Pass. It was a day of easy climbing, up the glacier for three or four miles and then along grassy slopes and rocky ledges. The mountain tops were still hidden, though now and again the clouds would sweep apart and disclose the icy crown of Whitehorn, the saurian head of "Mugger," the sharp tooth of the Lynx, or white Resplendent, the snowiest and most radiant of them all.

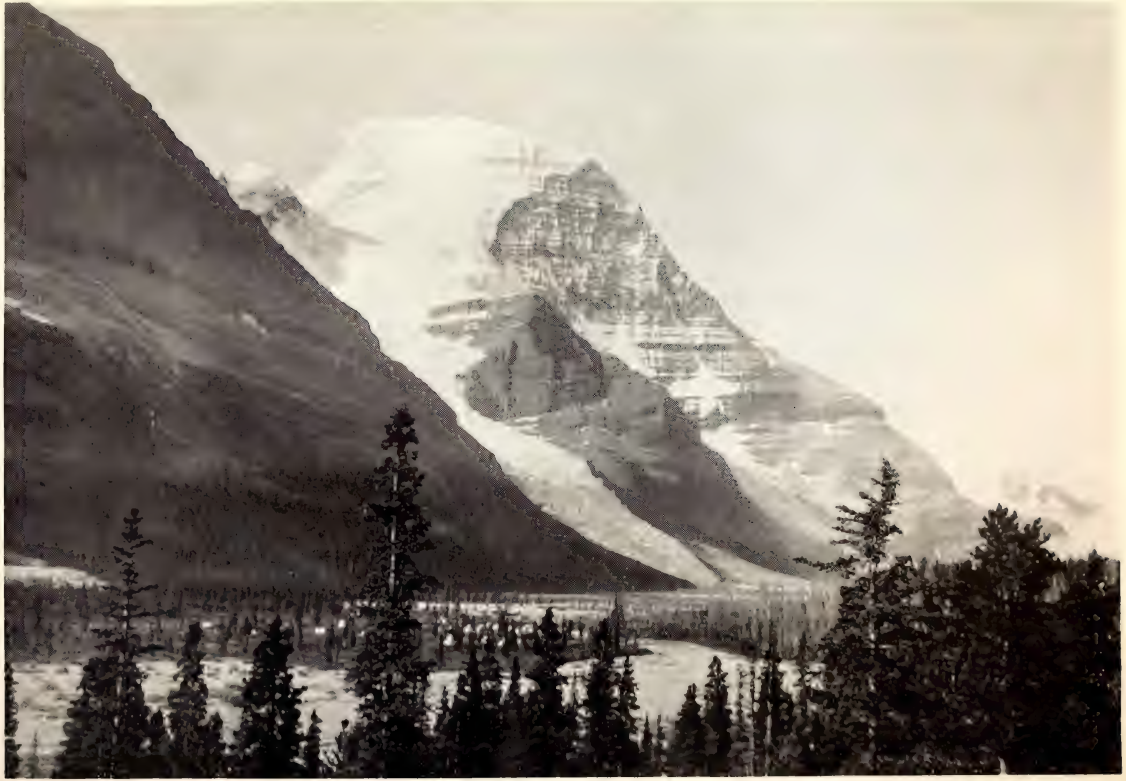
From Snowbird Pass we climbed to the summit of Ptarmigan Peak whence we overlooked the Coleman Glacier and the deep blue rift of the Smoky River Valley. A timely break in the clouds showed us an avalanche on Robson, tons of powdered ice pouring down for a thousand feet like the mist of a waterfall. The Robson Glacier, whose whole length we could see, is the fountain of rivers flowing into two oceans. Its terminal is split by a rocky point. The northern half of the ice stream drains into Lake Adolphus, whence it flows to the Smoky River and ultimately to the Peace; the southern half is the source of a branch of the Fraser.

Not until morning did we see the whole of Robson. Donald called us at sunrise, and we looked from our tent to see it shining in golden glory in a cloudless sky. We were close under it, hardly more than a mile from its base; it rose abrupt, nearly eight thousand feet above us. From a snow cornice at the summit the Tumbling Glacier swept down the whole flank of the mountain, each ice pinnacle alight and glittering. The right hand slope was a long rock ridge, broken by ledges and precipices; that on the left swung around in an icy ridge toward black Rearguard. Even more cruel and formidable did the mountain appear in its sharp-cut brilliance than as we had heretofore seen it in fleeting glimpses through the clouds.

By this time we were ready to admit that Robson was no mountain for women to climb—not for two women with only one man at any rate. So that afternoon we decided to move camp about ten miles northeastward to Moose Pass. From this camp we made the ascent of Mount Pam, about ten thousand feet, a snow peak of little difficulty or danger except



EMPEROR FALLS AND SLOPE OF ROBSON
Courtesy of the Grand Trunk Pacific Railway



NORTH SIDE OF MOUNT ROBSON
Courtesy of the Grand Trunk Pacific Railway

from hidden crevasses, which with so small a party are always something of a menace. We roped together, however, and had no misadventure.

Mount Pam stands out beyond the main axis of the wildest, snowiest mountain chain that I have ever seen. All around us shone literally hundreds of white summits, of which not one in fifty had ever been climbed or named. Far away to the northwest, almost like a cloud on the horizon, Donald pointed out the great peak "Kitchie," visited by Miss Mary Jobe several seasons ago, but as yet unclimbed. Close beneath us were high, bare plateau regions, the range of caribou herds; blue lakes and dusky valleys showed farther to the east. The whole horizon was rimmed with shining mountains, Robson towering above them all, visible now from its snow cornice to the blue depths of Lake Adolphus at its base.

Our return late that afternoon over glaciers and down long heather slopes gave a new and still more glorious impression of the wild sea of mountains. The peaks burned with the sunset; the velvety slopes of Moose Pass grew purple and shadowy in the dusk. Our camp was in a flowery park among groves of spiry balsams. Purple asters and yellow compositae, blue gentians and shaggy anemone heads—"little owls" Donald called them—made bright garden patches among the trees. We held campfire that night in a tepee, sitting around the tiny blaze on blankets. Many a story Donald told us of trapping days in winter, or of Hudson's Bay Company men, grown old in the wilderness before the railroad came. As we talked and our fire burned low, a strange, unearthly glow shone upon our faces.

"Northern lights!" said Donald, and we crept outside.

Flickering bands of greenish light were moving across the sky like figures in a ghostly dance. Suddenly great shafts of light shot upward toward the zenith. All around the horizon, though fainter toward the south, they shone, a tepee of the Great Manitou set in the starry meadows of the sky.

Here at Moose Pass we were on the outskirts of one of the finest big game regions of the north. We had seen the tracks of moose and caribou and grizzly bears, but except for two goats on Mount Pam, no living animal larger than a porcupine.

As we rode down the pass on our way to the Smoky River, however, Donald pointed out a caribou far down in the valley of Calumet Creek.

"Ride on steadily without speaking," he said. "We may be able to get quite close."

We were perhaps within an eighth of a mile when the caribou first saw us. Instead of running, he wheeled about once and stood looking at us as we rode forward. We had approached within a hundred yards before he showed any signs of fear. Then he merely circled and came back to look again. We got near enough to photograph him several times before he decided we were dangerous and swung away into the woods. He was a magnificent fellow, with glossy dark coat and great spreading antlers. In response to our surprise at his coolness Donald told us that he had killed one out of a herd the year before and the rest had stood around to watch him skin it.

That was my day to ride behind the caravan. Donald led always, as the way was often obscure. One lady was priviledged to ride behind him, free from care, while the other kept the pack animals in motion. One of them, the Kid, reminded me of an elderly lady I once knew, who under a very meek exterior hid an iron determination to go her own way. Left to his own devices, however, the Kid would never quite drop out of sight, so I learned to let him follow at his own pace, and behind old Roanie rode on unfretted, enjoying the new snow peaks rising in every notch of the valley and the picturesque maneuvers of our train. We followed an old Indian trail, scarcely a trail at all, that forded the river about forty times that day.

As fresh tributaries were added the fords became more and more disturbing. At lunch time Donald shook his head.

"The river's mighty high," said he. "It's been rising for two days. We may have to swim the horses below."

"Can my horse swim and carry me too?" I demanded in some trepidation.

"Oh, he can a little way," said Donald. "But if the current's too swift you'd better hop off."

"Hop off!" said I.

"Yes—just hang on to the pommel and he'll pull you through." Luckily this feat was not required of me. We made the last crossing, that of Glacier Creek, without mishap, though it ran turbulently over a rough and bouldery bottom. At dusk we pitched camp in a fir-fringed meadow close under Mount Bess. The special charm of this camp was its close proximity to grizzly bears. We plucked their hair off trees for souvenirs, and found their tracks wherever we stepped, even saw drops of water shaken from their coats not yet dry on the streamside rocks, but not a bear did we see.

From the upper slopes of Bess Pass, where we climbed in the morning, we saw new ranges and valleys of desire. A high green upland and a chain of white peaks that terminated in an icy Olympian mountain aroused our keenest interest.

"Some day," we said to Donald, "we are coming back, with Sierrans and Mountaineers and three weeks' time and provisions instead of one. Save us that beautiful mountain for a first ascent."

"Sure I will," promised Donald. "I'll set all my bear traps around it in the fall."

Then we struck camp and started the caravan along the homeward trail. Kinnikinic* and dwarf cornel berries flashed red under the trees, and though the best flower season was past, harebells and paintbrush and asters still bloomed in the open spaces. We left the long shingle bars of the Smoky Valley near sunset and rode up through the yellowing meadows of the upper valley. As we rounded Lake Adolphus, Robson and Resplendent again rose before us, banded and crowned with brilliant clouds. Down in the darkening water, too, clouds and mountains were shining as brightly. Looking into the blue depths I thought that, as far as I was concerned, Robson itself was no less unconquerable than its mirrored image or the crests of cloudland piled above it in the sky.

---

* *Arctostaphylos uva-ursi.* Kinnikinic is an Algonquin word meaning a mixture. It is applied also to a mixture of the leaves and bark of several plants — willow, sumac and silky cornel — smoked by the Indians.

RECORD OF AN EARLY EXPLORATION OF TENAYA CAÑON

EDITED WITH NOTES BY J. N. LE CONTE

THE Sierra Club is fortunate in being able to secure a description of what was certainly the first exploration of the Tenaya Cañon, in the Yosemite National Park. Those of us who have climbed through this rugged gorge, so near to the familiar Yosemite Valley yet so little known in detail, have always considered that John Muir's trip in the early 70's was the first made by a white man. While it probably was the first complete trip through from Lake Tenaya to Mirror Lake, there has now come to light a partial exploration made in 1866 by Mr. Joseph Ferrell. This valuable historical record has been written out by his daughter, Mrs. Mary Russell Ferrell Colton, whose introduction to the diary follows:

"The following is an account, taken from an old diary, of what is probably the first exploration of Tenaya Cañon, made by two young men from Philadelphia, my father, Mr. Joseph L. Ferrell, and Mr. Alfred Jessup, in the year 1866. It will be remembered that the valley had been known to the world for but fifteen years previously, and up to this time had been visited by only six or seven hundred people, while during the year in question 382 tourists came to the Yosemite.* See Bunnell, L. H., *The Discovery of the Yosemite,* Los Angeles, 1911.

"This was before the days of the railroads in the Great West, and my father and his companion had already crossed the plains with a mule team, encountering many thrilling adventures along the old immigrant trail, en route to San Francisco and the Sandwich Islands.

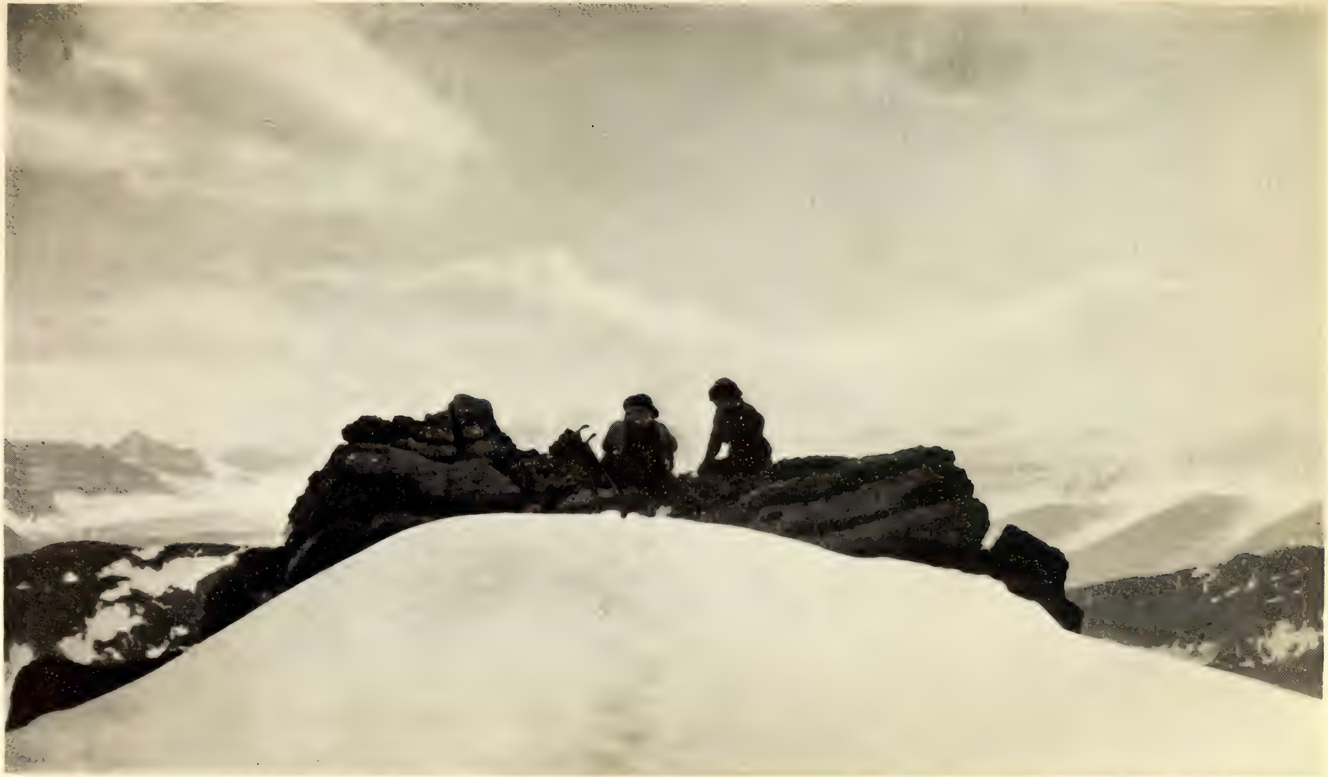
"MARY RUSSELL FERRELL COLTON,

"Flagstaff, Arizona, September 14, 1916."

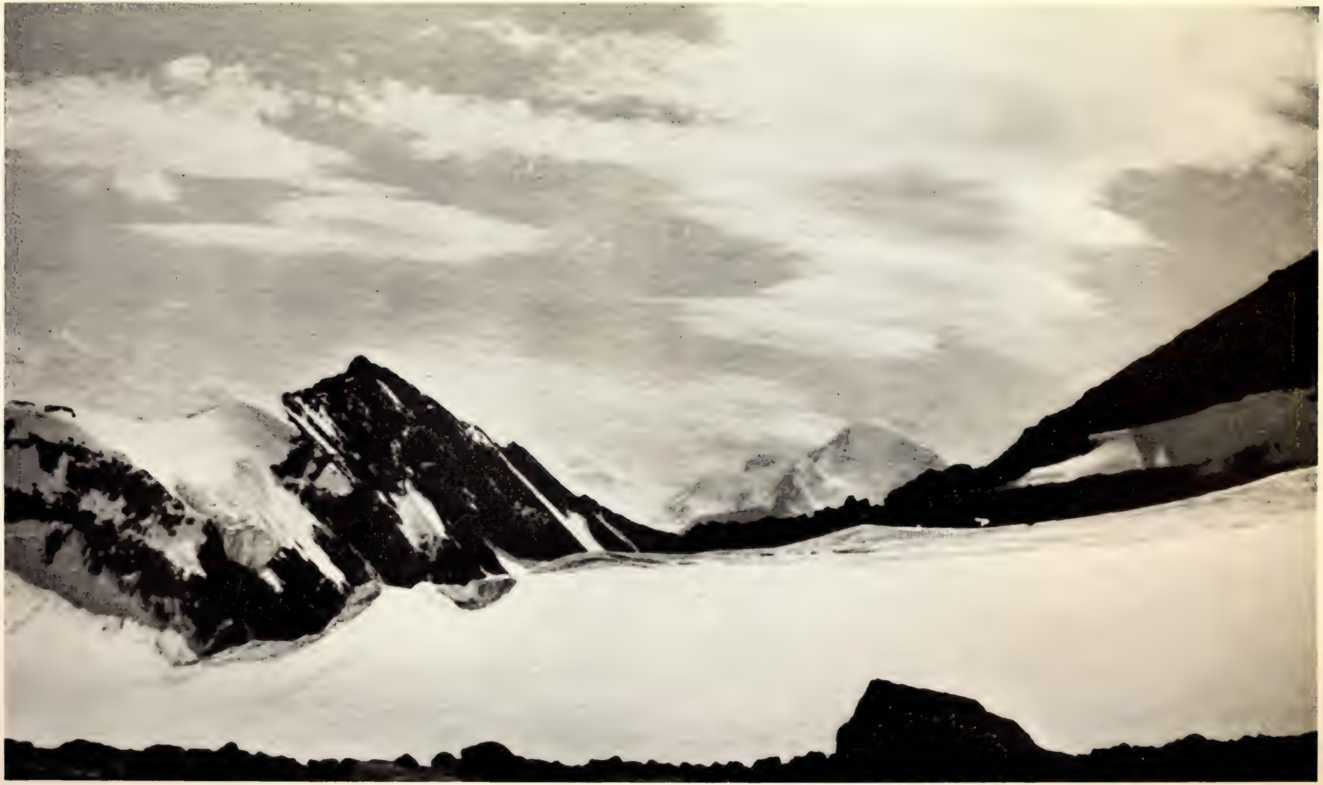
The diary opens on October 15, 1866, at San Francisco, and

---

* A map and description of Tenaya Cañon will be found in "Scrambles About the Yosemite," by Joseph Le Conte, *Sierra Club Bulletin,* vol. 9, no. 3, January, 1914.



SOUTHWEST FROM CREST OF MOUNT PAM
Photo by Marion R. Parsons



ROBSON AND RESPLENDENT FROM MOUNT PAM
Photo by Marion R. Parsons

describes the trip by steamboat up the Sacramento River to Sacramento. From this point Mr. Ferrell and party continued by stage to Stockton, and then on by stage to Hornitas and Bear Valley. At Bear Valley the party traveled on horseback, although the road even at that early date extended beyond Mariposa. A short distance beyond White and Hatch's Mill the journey was continued over the Chowchilla Trail to Clark's Station (now known as Wawona), on the South Fork of the Merced. The following day a trip to the Mariposa Big Trees was made, and it is of interest to note that on this trip Mr. Ferrell met Clarence King, of the California Geological Survey. The next morning the party proceeded over the regular trail by Inspiration Point to Hutchings Hotel in Yosemite.

Mr. Ferrell's diary continues as follows:

"*Hutchings,* Monday, Oct. 22d: We got up late this morning, had a good breakfast and afterwards started up the valley to Mirror Lake, about four miles off. We reached there betimes and sat down on the banks gazing on the marvelous reflections of the huge mountains on either side in the water. We spent the whole morning here watching the different phases of scenery, ate lunch, and like great children sailed boats on the lake waters until I concluded to return to the house and fish in the river for trout and write. Mr. J. and the guide, Mr. Stegman, resolved to go beyond the lake and explore a little. I rode back alone at a good jog on my good mare Kate and fished awhile in the clear crystal water of the river without success, and talked the rest of the time with our landlady until supper, when the boys came. They had wild stories to tell of their explorations in a cañon which has never as yet been traversed above some fine falls situated there. Mr. Hutchings tells me they have never been seen and the cañon not known. Mr. J. and Mr. S. are determined to go tomorrow and explore further.

"*Lincoln Cañon, Yosemite Valley,* Oct. 23d: This morning we had a good early breakfast and consequently a good start and rode off up the valley toward the lake. I turned off to the cabin of an old settler by the name of 'Lamon' to enquire all about the topography of the locality to which we were bound. I found that he knew nothing about it and wheeled away and rode to the lake, passing by the rocks to an open grassy glade beyond, where we dismounted, tethering our horses by long lariats, relieving them of saddle and bridle so they could graze. Mr. J. and Mr. S., taking off their coats, threw them down on the saddles. Cutting great canes to assist us, we started upon the Mono Trail, traversed occasionally by Indians. [Note 1.] For a while it led up the valley through open plots of grass and between hugh masses of rock in the deep dark forest. We suddenly turned sharply off to the left, up the mountain, where at once we began to climb the steep ascents following the dim trail of the Indians. It was a work of incredible difficulty to creep and clamber up the mountain side. In very many places we had to climb over the smooth rock for a great distance where the slightest slip of hand or foot would have precipitated one into a horrible abyss. After going on about two hours we came to a place where the trail turned off to the left, winding around to a cañon, up which it wended to the mountain summit.

"Here we halted and held counsel with each other. Our cañon lay off to our right. Above us the summit of the mountain, the slope of which reaching downward was impassable from the smooth rock that formed it. Breaking above us it exhibited an overhanging surface barring our progress in an upward direction. Below us and from a line parallel and extending from our position to our right as far as the cañon, the mountain swept smooth and precipitously down to the base, leaving a bushy, briary space between which it might or might not be practicable for us to reach the cañon to our right. We rested ourselves a while and then summoning all our energies we struggled frantically over the debris of granite and through dead limbs of trees on the verge of the precipice, watchful, half exhausted and yet determined to achieve our project if at all feasible. A long, long and most exciting and fearful struggle we had of it, exploring and fighting a passage over almost impassable rocks and through thickets, where we were torn by

---

[Note 1.—The Mono Trail to which reference is made must have been an old Indian trail ascending the west wall of Tenaya Cañon between the present Tenaya zigzags and Snow Creek. Mr. Fiske, the pioneer photographer of Yosemite, on being questioned on this subject, says that the Mono Indians had often mentioned the fact that such a trail existed, and that it was in fact their usual route to the valley from the east. Mr. A. C. Pillsbury has made the trip up Snow Creek cañon and reports remnants of an old trail there even at the present date. When the present Tenaya Trail was built no indications of an Indian trail were found along that route.]

briars and our boots worn through to our feet by the sharp cutting edges of the coarse granite. Finally, about two o'clock, we came to the side of the cañon, but found it precipitous. [Note 2.] We hunted hither and thither slowly and most cautiously for means of descent, finally finding a narrow ledge where with infinite care we might get down. Down we did succeed in getting, and right before us saw a beautiful basin of rock with huge boulders forming its sides, which basin was filled with most exquisite water, and into which a cascade of about ten feet fell through the great rocks in foaming flakes, forming a most charming picture. To us who were so fearfully exhausted the sight of the water cheered marvelously. We rushed to it without speaking, and falling down on our faces, drank long and deep draughts from the crystal fountain. Never did anything taste so surpassingly excellent. After resting ourselves and looking up and down the cañon, we ate our lunch and, feeling much strengthened thereby, girded up our loins and began the ascent. Far above, at an angle of 60°, we saw the end of the cañon and the summit of the mountain. To the left through a tall pine we saw the lashing of a mighty fall of water, leaping and dashing over a lofty ledge of rocks and falling into the cañon. [Note 3.] Between our position and the cascade lay half the cañon, almost impassable from the titanic rocks chaotically piled one upon another, suggesting doubts of a passage. Above on either side the cañon was a sheer smooth precipice with beautiful ferns feathering every crevice with drooping fronds of emerald green. Through great masses of rock that blocked the cañon the waters hissed and boiled and percolated in foaming torrents, most beautiful to behold. We started our venture up the cañon, clambering, climbing on hands and knees, leaping from huge boulders over cauldron-like basins of foaming waters, exertions calling forth all our strength. Finally, we accomplished the distance which brought us to the base of the magnificent cascades, broad and ethereal, dashing a thunderous sheet of foam below. I climbed up be-

---

[Note 2.—It would appear from the above that the party must have climbed entirely out of the cañon and over the top of Mount Watkins, descending again into Tenaya Cañon just beyond that great barrier. It is not clear just how this portion of the climb was made. It seems strange that the crossing of Snow Creek is not mentioned.]

[Note 3.—This must be the great fall at the head of the main cañon and just below Glacier Valley. There are two falls here, the large one being above.]

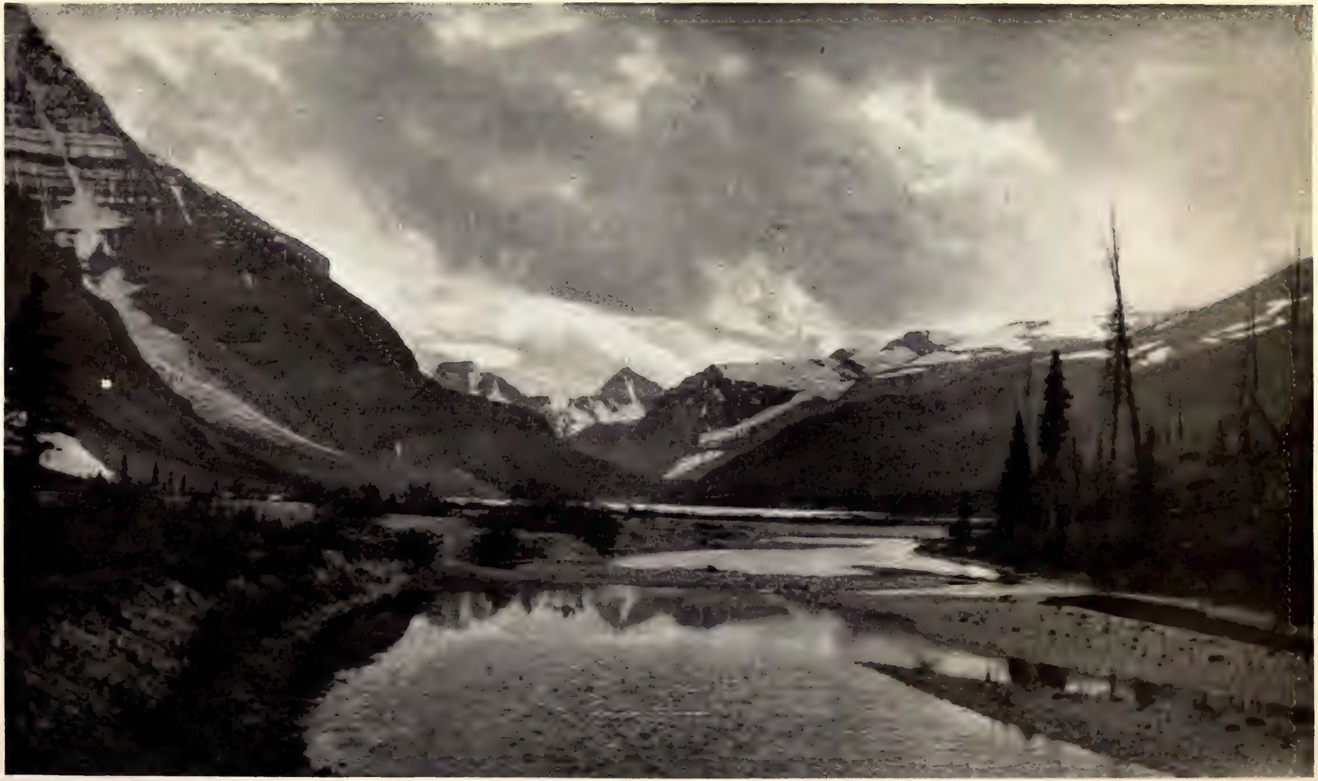
side the cascades to see if there was a perpendicular fall above descending from the mountain summit, and found one perhaps a hundred feet in height. I then descended to the rest of the party and we slowly returned down the cañon to the place where we had entered it. It was then about four o'clock. Mr. J. and Mr. S. concluded that there was a practicable passage down the cañon, and therefore we went down some distance until we were met by a smooth face of rock running all across the cañon where the waters flowed over, making a beautiful fall of a hundred feet in height. [Note 4.] Below it was repeated, forming a second fall. Here we were forced to betake ourselves to the left-hand side of the cañon, the right-hand side being precipitous and smooth surfaced rock. We had to work our way through the branches of oak with great care downward until we came to a spot where from a tree the rock was smooth for about fifteen feet, until we reached a crevice below. Down this place Mr. S. slid on his back and reached the crevice in the rock, with Mr. J. and myself after him. On reaching this place below we made the rather startling discovery that below us the mountain showed a smooth, precipitous face of rock for perhaps a hundred feet. An old trunk of a tree lay before us and it was proposed to lower it and work our way down to a ledge below on it, but even then we could not be certain that we would not meet a more extensive and formidable precipice below that point, so that design was abandoned.

"Night came creeping on and it behooved us to adopt some plan. We were standing in a crevice of rock about a foot in width and ten or twelve feet long, a precipice above and one below and the cañon beside us, with the swiftly rushing waters gliding over the glassy surface of the rock, falling in impalpable mist a hundred feet below. Our position was truly perilous, and it was with great delight that we discovered that Mr. J. had had the forethought to bring a rope with him in the morning. He had worn it around him and now he produced it. Mr. S. and I first pushed him up the rock that we had slid down until he was able to reach the ends of the limbs overhanging the rock, when he drew himself up and, tying the rope to the limb, threw it to Mr. S., who, with my aid in pushing his

---

[Note 4.—This was probably at the upper entrance to the box cañon.]

CARIBOU, VALLEY OF CALUMET CREEK
Photo by Marion R. Parsons



LOOKING ACROSS BERG LAKE
Caribou Range and slope of Whitehorn in distance
Photo by Marion R. Parsons

feet up, got up beside Mr. J. I followed, holding on to the rope and, when within distance, was seized by Mr. J. and drawn up to them. In the gloom of the evening we retraced our steps and after a hard clamber reached a flat rock. overlooking the upper of the two falls, surrounded by great rocks. Here we concluded to camp out all night in preference to attempting to get down in another way on the mountain or in seeking our trail of the morning. Whilst there was yet a little light left, Mr. J. got some wood, of which there was plenty near at hand, and built a good fire on the flat rock, while Mr. S. went out to see if he could find some other way to get out of our difficulty. He soon returned, however, and we three sat down by our bright fire in doleful anticipation of a cold and cheerless night, hungry, without even coats to shield my companions from the cold air that followed the rushing water down the cañon. Mr. S. improvised a bed to obviate the necessity of lying on the hard rock by cutting the leafy branches off the near trees and placing them beneath us. We all lay down by the fire, quiet and yet unable to sleep, the fire toasting our side nearest it while the wind chilled the other side. Mr. S. found a semi-cave in which he built a fire and made a bed for Mr. J. in which he was shielded from the wind. The night passed slowly and drearily.

"*Hutchings,* Oct. 24: The moon shone beautifully down in the valley and about midnight stood above our deep cañon, gleaming on the worn rocks and intensifying the shadows. The morning, as it drew on, brought with it more intense cold, and all the wood we could throw on our fire failed to ward off the chills. Dawn at length stole in upon us and we prepared to seek our trail of yesterday. We plodded over the rocks and got up upon the mountainside, where with much labor we succeeded in following up the trail until it struck the main Mono trail. Then, as fast as possible, hurried down into the valley, put the saddles on the horses, poor animals who had suffered for want of water, and rode as fast as we could to Mr. Hutchings' house. Here all day we have been lying listlessly about the house, reading and whiling away our time, resting ourselves and preparing for our trip to the Nevada and Vernal Falls tomorrow."

THE WHITE MOUNTAINS OF CALIFORNIA

By Willis Linn Jepson

ZEST of botanical exploration and the perennial desire for the open of the back country had long combined to whet my desire for a summer's work in the White Mountains of eastern Mono and Inyo counties. They form one side of the great Owens Valley trough, and they rise as abruptly from the valley floor as does the Sierra Nevada wall to the west.

Our way of approach was by Silver Cañon, a characteristic cañon of a desert range. Opening into Owens Valley it runs eastward in a nearly straight line for six miles, directly into the White Mountains. As is usually the case in such cañons its narrow floor seems nearly level, but the gradient is about ten feet in ten to sixteen rods. At the point where the cañon parts into three forks our party of scientific men made camp at 6500 feet in order to spend some days in field work on the mammals, birds, and plants. Just at this point in the cañon there is a narrow band of a desert Mahogany *(Cercocarpus intricatus)* on the cañon wall, a species remarkable for its minute leaves. A gay border of moisture-loving plants edges the swift streamlet in the bottom—yellow Monkey-flower, an annual Indian Paint-brush *(Castilleia stenantha),* a Columbine, the same as the coast species, and Desert Crowfoot *(Ranunculus Cymbalaria)*.

On our journey to the summit of the range we follow the left-hand or northerly fork, which is really the continuation of the main cañon, finally leaving the cañon bed and zigzagging up its easterly wall. Very soon we enter the zone of the Piñon or One-leaf Pine, which forms here a very fine forest—very open, of course, but giving a distinctive character to these slopes and narrow benches or flats on the mountain side. A full-grown tree is inclined to become very individual, and not a few of them develop the habit of a Coast Live Oak, some standing out in high relief on the steepest rocky walls, some on the little level benches. Towards the upper limit of the Piñon, the common Desert Mahogany *(Cercocarpus ledifolius)* forms bands on the ledges of the cañon walls up to altitudes of 7500 or 9000 feet. These shrubs have here a blue-green aspect, but of darker tint than the blue rock ledges which they follow.

At 8500 feet one leaves the Piñon and enters a zone of the Limber Pine *(Pinus aristata)*. Like every so-called forest in a desert range of mountains it is very open. The trees are mostly short and stocky, that is, twenty to forty feet in height, sometimes fifty-five feet, with extreme trunk diameters of three or four feet. The bark is a light-colored drab, with streaks of black in the fissures. There is practically no underbrush, although occasionally one finds a fine clump of Desert Spiraea* *(Chamaebatiaria millefolium)*. Leaving the forest the trail leads for seven miles through a sagebrush association where grow a number of interesting herbs, the Sego Lily, various Eriogonums and Arenarias, a Silene and a Lupine.

Just northeast of Big Prospector Meadow camp was made at 8300 feet, on the headwaters of North Fork Crooked Creek. Springs in this range are very scarce, but we are fortunate in having by the camp a fine spring pouring from the granite rocks.

After some days at this point I leave the remainder of the party and start for the highest point in the range, White Mountain Peak. I elect to trail along the sides of the range some distance, instead of climbing at once to the axis. My way leads over a low ridge north of the camp and down into and along Poison Creek, through a luxuriant growth of Tall Larkspur and Selinum, a luxuriance contrasting strangely with the scanty, or at least desert-like, vegetation of the mountain sides. After two miles I turn to the right up a fork of the stream and cross a low divide to a small tributary of Cottonwood Creek, the main water channel of this region.

One of the members of our party saw mountain lions a few days ago at Cottonwood Creek, and as I proceed down the tributary to the main stream I hope to glimpse one of the big cats. Huge blocks of granite lie at right angles, often molded into dome forms or semi-orderly structures. One looks up the little lateral cañons as one passes up the main stream and sees miniature El Capitans rising from dainty green meadows broidered with flowering herbs.

---

* See *Sierra Club Bulletin,* vol. 9, p. 42, 1913.

The flowering herbs in this cañon are of especial interest and so engross my attention that lions are quite forgotten. My botanical press becomes heavy and still more heavy until I am interrupted by a Mexican vaquero, of whom I inquire about the trails to the peak and finally about lions. "But where is your gun?" says the Mexican. "Oh, I never carry arms" is my reply. "El Americano!" I heard him exclaim, as he turned his horse down the trail.

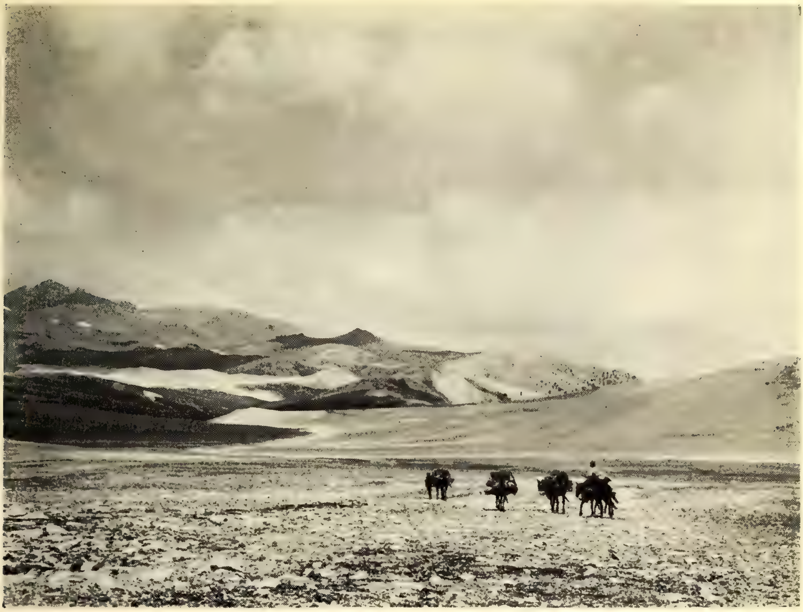
Hours of steady pulling over the rock-strewn bed of the upper Cottonwood brings one finally to the summit of the range, and I start northward along the plateau, passing the night at McAfee Meadow. The next morning the way is still northerly along the axis, White Mountain Peak in full view, standing up out of the range like an eagle's beak with the perpendicular wall to the west.

After reaching the face of the peak proper it is simply laborious climbing for near fifteen hundred feet up, over a wilderness of angular blocks. The United States Geological Survey bench-mark on the summit at the monument gives the altitude as 14,242 feet, which is higher than any of the peaks in the Yosemite group across the gorge of Owens Valley. That is to say, it exceeds Mt. Dana by 1192 feet, Mt. Lyell by 1152 feet, and Mt. Ritter by 1086 feet.

At the summit of the peak grows the Alpine Polemonium *(P. eximium)*, extending down the slopes to 13,500 feet. An alpine Erigeron grows within one hundred feet of the summit, these two species being the only plants found above 13,900 feet. Between 13,200 and 13,900 feet were found a species each of Hulsea,* Calyptridium, Draba, and Potentilla. In addition the yellow-flowered Alpine Buttercup *(Ranunculus Eschscholtzii)* grows on the rocky slopes at 13,700 feet. This is a remarkable species, being the only truly alpine species of buttercup in the high mountains of California. It extends far northward to Alaska and the Aleutians. It only remains to be said that the

---

* Hulsea algida, which is a characteristic alpine of the highest Sierra peaks, from Mt. Whitney to Tower Peak and Mt. Rose. On Mt. Whitney it is found nearly if not quite to 14,000 feet, ranging higher on that mountain than any other species of flowering plant observed by the writer.



LEGENDS FOR FIGURES

Fig. 1. Flats of the axial plateau, about 11,500 feet, between McAfee Meadows and White Mountain Peak, the latter the highest point at the left. The upper limits of the forest band of Limber Pine (Pinus flexilis) and Hickory Pine (Pinus aristata) show on the slopes of the eastern mountain wall to the right

A. C. Shelton photo

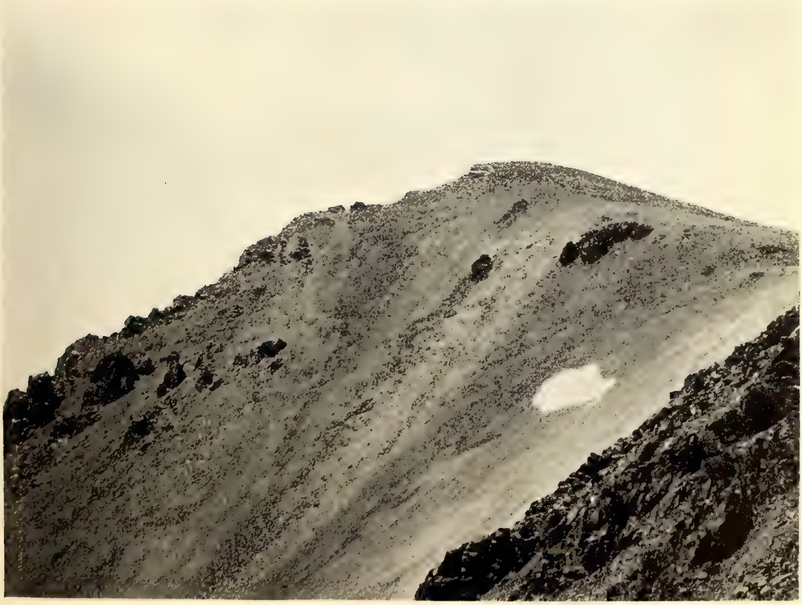


Fig. 2. Summit of White Mountain Peak, from a point at about 14,000 feet

A. C. Shelton photo

CAMP AT YOUNG LAKE
Photo by Walter L. Huber

number of plant species on the peak proper is very small and the vegetation is exceedingly scanty.

If one is a pigmy one cannot view a giant very well by standing at his feet. One does, to be sure, obtain a certain impression of the vastness and height of the eastern wall of the Sierra Nevada by standing at its base in the Owens Valley; but these impressions are not in any wise comparable to the impressions thronging instantly on the mind as one surveys the Sierra from the altitude of White Mountain Peak. The high snow fields and plateaux and peaks unfold in a way to reveal unexpected and unusual grandeur. It is a revelation of the highest Sierra—almost as if one were viewing them from the vantage point of a separate planet which had wandered near.

In the end of April and early May it was my fortune to be in Death Valley, whence a trip was made into the Panamint Range, of which the dominating height is Telescope Peak, 11,045 feet in altitude. The situation of Telescope Peak, its distance from Mt. Whitney, and its altitude combine to render it an unequalled view-point for comprehension of the premier mountain chain of California. From this pinnacle one sees the Sierra Nevada rising from the great interior plateau as an unbroken wall barring the westward way. One is thrilled with a new sensation, for he feels that he sees the whole snowy range. There it comes, out of the far distance from the Mt. Ritter group of peaks, down to University Peak and Mt. Williamson, curving down to Mt. Whitney, Mt. Le Conte, and Mt. Langley, curving steadily on to Olancha Peak, and always without pass or break, and still curving steadily on westerly till lost in the Double Peak of the Tehachapi Range, thus enfolding to the westward that mysterious land, the light of which one sees through a purple haze beyond the line of snowy peaks.

To my mind no other view of the Sierra Nevada equals this in romantic character. From no other point does one so nearly seize the whole mighty chain in one sweep of the eye; from no other point is the contrast of the desert ranges so impressive; from no other point is there greater possible appreciation of the Sierra Nevada as a barrier, especially in its relation to the westward migration of men.

The White Mountains, however, far surpass the Panamint

Range in extent and height, and in area and persistence of snowfields. The name White Mountains does not seem happy, but certain granite peaks of the range are said to show white as viewed from the northwest. The term "White Mountain Peak," which is used for the highest point by the United States Geological Survey, seems especially awkward and unfortunate. An alternative name, Mt. Olmsted, appears on the Forest Service map of the Inyo National Forest and is much to be preferred.

❧

MOUNTAIN CLIMBERS

BY ARISTIDES E. PHOUTRIDES

Under sun-enamored shades
Born of cedar, pine, and fir,
Through the flower-spotted glades
Where the fleeting insects stir,
Past the valleys, past the hills,
Up the singing mountain rills,
Upward! Upward!
The blithe climbers go!
Upward! Upward!
Past all things below!

To the lofty mountain peak!
To the snows that touch the sky!
Where the tongues of ages speak
With eternal voices high,
Echoed in their endless rhyme
By a bournless space and time!
Upward! Upward!
The blithe climbers go!
Upward! Upward!
Past all things below!

(From LIGHTS AT DAWN)

Kern River, California,
July, 1912.

THE CLIMB OF DUNDERBERG VIA VIRGINIA CAÑON

By George C. Thompson

◆

THE encampment of the Sierra Club in Tuolumne Meadows during July, 1917, was, from every standpoint, a success, and from many standpoints an unqualified success. It pursued, in the main, the objects for which the constitution of the club declares we exist. It is a matter of common consent, however, that the side trip, those few days when kindred spirits become knights of the road, is the *pièce de résistance* of the summer outing; for it is then you see the finest views, climb the highest peaks, get the biggest appetite, and catch the most unheard-of trout. It is then, too, that you readily find out what stuff your comrades are made of.

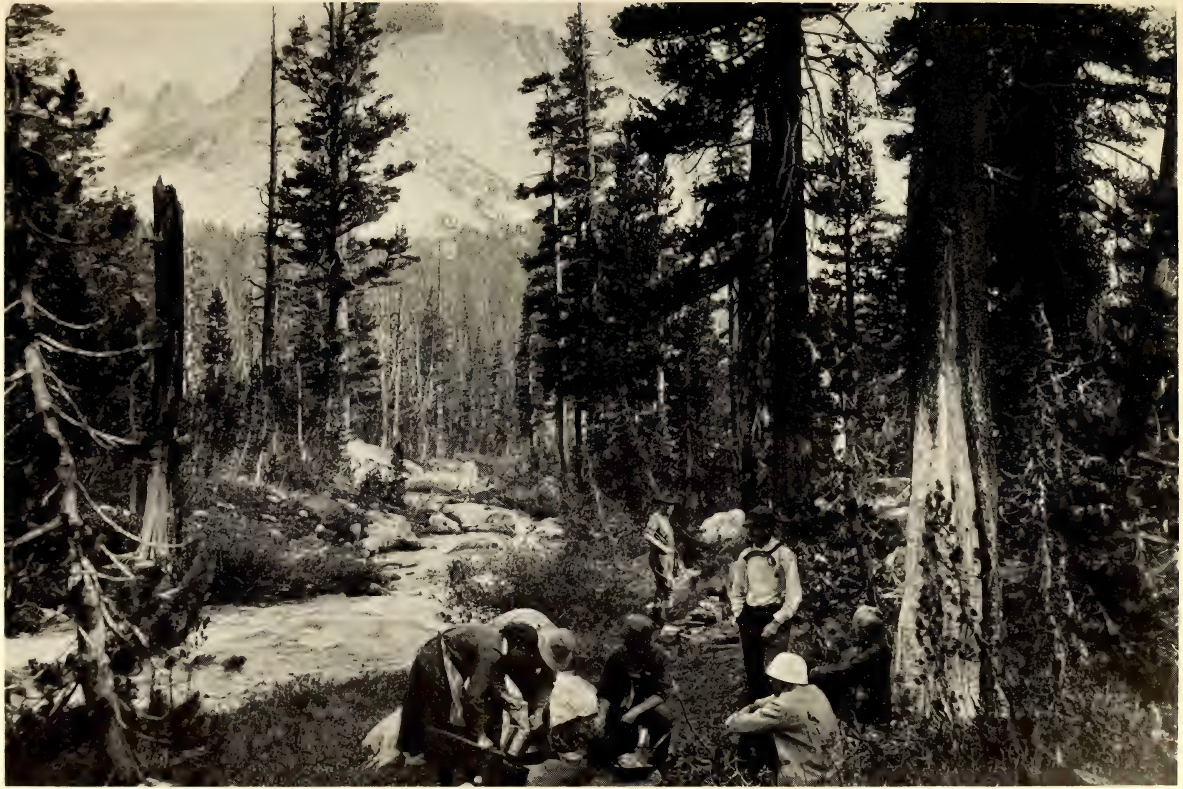
Last summer's outing can boast of at least two such trips that had the zest of newness and romance, and that, too, within a bow-shot—of course I mean a Sierra bow-shot—of the Soda Springs. They were the trip to the Ten Lakes Basin, and the climb of Dunderberg via Virginia Cañon. The first, Ten Lakes Basin, does not come within the scope of this article. The five-day Dunderberg trip, however, I shall attempt to describe briefly, having been in the thick of it as a fly-caster and humble member of the commissary.

When it became noised along the rocky slopes of Parsons Ridge, I almost said Parnassus Ridge, that a five-day trip was being planned to explore Virginia Cañon, climb the forbidding pile of frowning rock, properly known as Thunder Mountain, that stands sentinel over the desert, and return cross country via Young Lake and Mount Conness, there was unusual stir and excitement. And when it became farther known that that intrepid and insatiable mountaineer, Walter Huber, was to be commander-in-chief of the expedition, and that he was to be assisted by Mrs. Parsons, it was soon a question whether it would be a side trip or whether we would have to move the entire camp, Soda Springs, Toy Gong, Tap, and all, in order to accommodate the numbers. It was finally agreed, however, that twenty should be the limit of the party, and that for convenience of commissary and general handling they should be divided into two platoons of ten each.

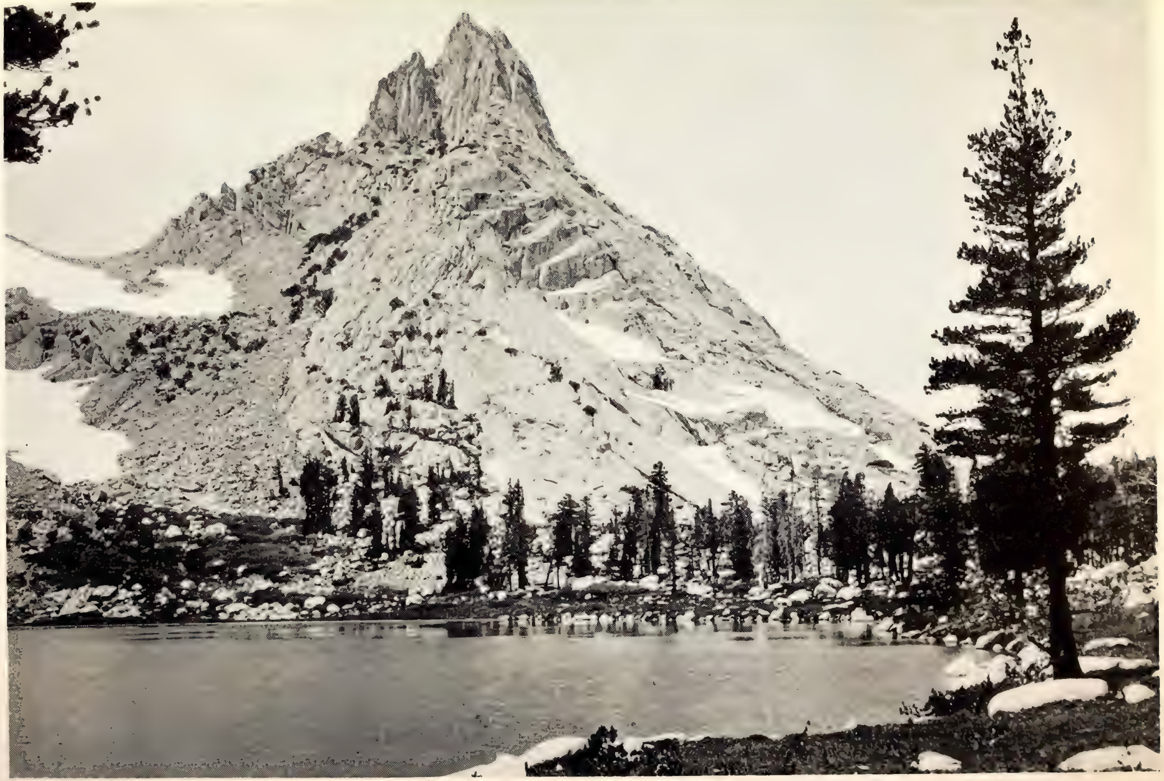
And so we set forth, bag and baggage, with the most efficient of packers and five pack animals. The first night found us by our camp fire at Conness Creek, dining on rainbow trout, and afterwards mingling our voices in true Sierra Club fashion in hymns of praise and thanksgiving. On the other side of the creek, Ray Bailey and his Rodgers Lake revelers were making their best efforts to prove that they were the true and only dwellers in the mountains. But they failed. We were it. So we thought and so we still believe. We were off to an unknown land — a valley lying somewhere to the northeast, guessed at, but unknown—and a still more mysterious mountain beyond. We had been to Rodgers Lake and knew it by heart. But no one, as far as we knew in the history of the Sierra Club, had been up Virginia Cañon and to Dunderberg. And so with lusty voices we proved our right of primacy far into the night. At last the fire died out and the winds and tumbling streams sang us to sleep.

The morning of our second day found us still on familiar ground, up Cold Cañon and over the ridge following the Matterhorn trail as far as Return Creek. Return Creek is the name given to the stream formed by the junction of Spiller and Virginia creeks, so Return Cañon and Virginia Cañon are, in fact, geographically one. The same stream heading in Virginia Cañon flows through both. At the point where the main trail crossed the creek we picked up the Virginia Pass trail, running northeasterly and following closely the stream.

Virginia Cañon is one of the many spots in the Sierra that owe their beauty and charm to what may be called their intimacy. You leave the rest of the world behind; you are visiting a friend at home, in the seclusion of a quiet beauty that is denied the world in general. To add to its charm you have not only meadows of rare flowers, but on either side the most perfect tamarack-pine forests that I have seen anywhere. Not a single dead tree up to the very sky-line mars the unbroken sweep of glistening green; and, best of all, the trail, which



CAMP IN VIRGINIA CAÑON, BELOW SHEPHERD CREST
Photo by Walter L. Huber



RAGGED PEAK AND YOUNG LAKE
Photo by Walter L. Huber

within a few years has been reblazed at the lower part of the cañon, suddenly gives out, and you are your own trailmaker. Open meadow follows stretches of forest, and forest succeeds delightful flower-scented glades. If you are careful, you are further repaid with the sight of soft-eyed deer, looking at you from the tangled underbrush, unafraid. The birds, particularly the thrushes, are fluting their dreamy songs from brush to mountain side, and the chickadee sings his love song.

We had evidence abundant that this is the true home of Apollo and the Muses. In fact one of our number had strange stories to tell of a lost trail leading to secret haunts where the sense of direction becomes confused and where, in bewilderment, one lies down and dreams to the music of unseen choristers and is wafted away under the tricky guidance of Pan and the water sprites. Yes, it is an intimate, a lovely, a friendly cañon, with a stream in its midst that has every virtue that a stream could have — babbling noises, tumbling rapids, cold, crystal pools, moss-lined and tanglewood banks, and overhanging shelves where the ouzel dips with lightning speed—everything!—with one exception. In vain did the best of fishermen, even the unexcelled d'Estrella, speed the singing line upon the foaming pools and change from fly to fly. Sad but true, the trout is a minus quantity. Still the trout is not always necessary, and we had ample compensation, an appetite and a thirst "you couldn't buy," and a meal truly fit for the gods.

And then as we sat in the gathering twilight, listening to the music of the stream and the last song of the thrush, we were suddenly aware of a miracle. The entire valley was transformed into a bowl filled to its brim with molten gold, while Shepherd's Crest, with its mantle of snow, blazed in the last rays of the sun like a great amethyst. We sat in silence for a long time watching it until gradually the light faded and the long shadows dropped into darkness. It was a scene that none of us can ever forget.

And then such a camp-fire as we had, soaring high above and lighting and lifting higher still the splendid tree tops that seemed to lose themselves in the sky! Songs, stories, a round table of friendly jest and reminiscence, and we are safe again in our sleeping bags upon "rock and cones imbedded deep."

Morning brings the third day, and while still the dipping stars were winking and the shadows filling up the valley, even before the highest point of Shepherd's Crest had felt the morning's breath, we were up and away. A climb of a thousand feet brought us to Summit Lake and in full view of Thunder Mountain.

Here the ways divided, and while the bold spirits turned their faces to the storm-defying heights, the slackers and a large part of the commissary contented themselves with climbing to Epidote Peak, and, dreaming in the sunshine, picking out the various peaks and lakes, and watching through field glasses the intrepids scale the frowning cliffs.

Dunderberg is a mountain of multi-colored rock, steep as to its sides, broken as to the rocks, and slippery, shifting, red and hot as to the uncertain shale. It also has snow on the side—steep, unclimbable snow—and on top, when you get there, a big monument of more broken rocks. It is easy to come down, but not exactly safe as to the coming. Rennie, the Mountain Goat, makes a bee line down ravines of crushed shale and fetches up, in a few thousand dashes, in something like twenty-three minutes, at the bottom. Others come more slowly, and with caution. After you have climbed it you are glad, and when you get back to camp you are gladder still. Those left behind at camp are glad, too, for they have kept dinner waiting, and they show their joy by unusually friendly greetings, and by handing out dainties that you never knew existed, such as onion and potato salad. I forgot to state that the elevation of this Thunder Peak is 12,365 feet.

Do not be too hasty, however, in deciding not to climb Dunderberg. The real and most important reason for climbing any mountain is the getting there and the things one can see from the top. Measured by this standard, Dunderberg ranks second to few in the entire Sierra. In fact it is the vantage point of this entire region, and commands on all sides views which are simply superb. Bridgeport Valley to the north, Monument Ridge and Saw Tooth Ridge to the north and west, Dana, Gibbs, Conness, Lyell, and many other old friends greet you from a new angle. Saddlebag Lake, Virginia Lake, East Lake, West Lake, Greek Lake, and innumerable others—even Hoover

Lake—winking with laughing eyes of blue, send their glistening light to greet you. Beyond, to the east, mysterious, silent, desolate, shadow-like, filled with shifting rainbow colors, lie Mono Lake and Mono Desert.

At the campfire that night, amid stories of adventure, narrow escapes, scientific discussion, etc., it was clearly demonstrated to the entire satisfaction of the twenty campers, and to the packer, that if a flying body, Homer Miller, for instance, in a mad leap for lower ledges, comes in contact with a splinter of Dunderberg, it is eminently fitting and necessary that he come into camp last of all, and that he occupy his place at the camp-fire in his sleeping bag, in order that Miss Bridges may illustrate with needle and thread a new use for bandanas.

Our cross-country trip from Virginia Cañon to Young Lake, where we camped for the last night, was a constantly shifting scene of forest, stream and mountain, with many surprises as to distances. Young Lake, only a short distance from Soda Spring, has not received the appreciation to which it is clearly entitled. We voted it by acclamation a spot of almost unparalleled beauty. Ragged Peak, White Mountain and Conness, so encircle it from various sides that its setting is one of wild beauty unsurpassed. The stunted trees, the broken granite boulders, the snow edging its way into the waters of the lake, the restless waves that nervously rock themselves from cliff to sandy beach, all add to the impression that this spot is very far from the world. One could well believe that no human being had ever visited it until his eye falls upon a bit of obsidian, or an exquisite arrowhead, giving evidence that in a bygone age here was once a happy hunting ground of the Indians.

The last day brought us to the top of Conness, and back by Young Lake and the circuitous contours of Ragged Peak, to the base camp at Soda Springs. Blessed is the side trip, so say we all; blessed is the spirit of the mountains; and blessed are the streams of crystal water and ice-cold plunge in lake and pool. The stars are blessed, too, showing in untold myriads so friendly and near. Blessed is the thunderstorm, and the sweet mountain rain, and the trees and flowers that hold up grateful heads. And blessed beyond all the comradeship that no one knows who has not tested its sweetness in the High Sierra.

KNAPSACKING IN THE KINGS-SAN JOAQUIN REGION

By A. L. Jordan

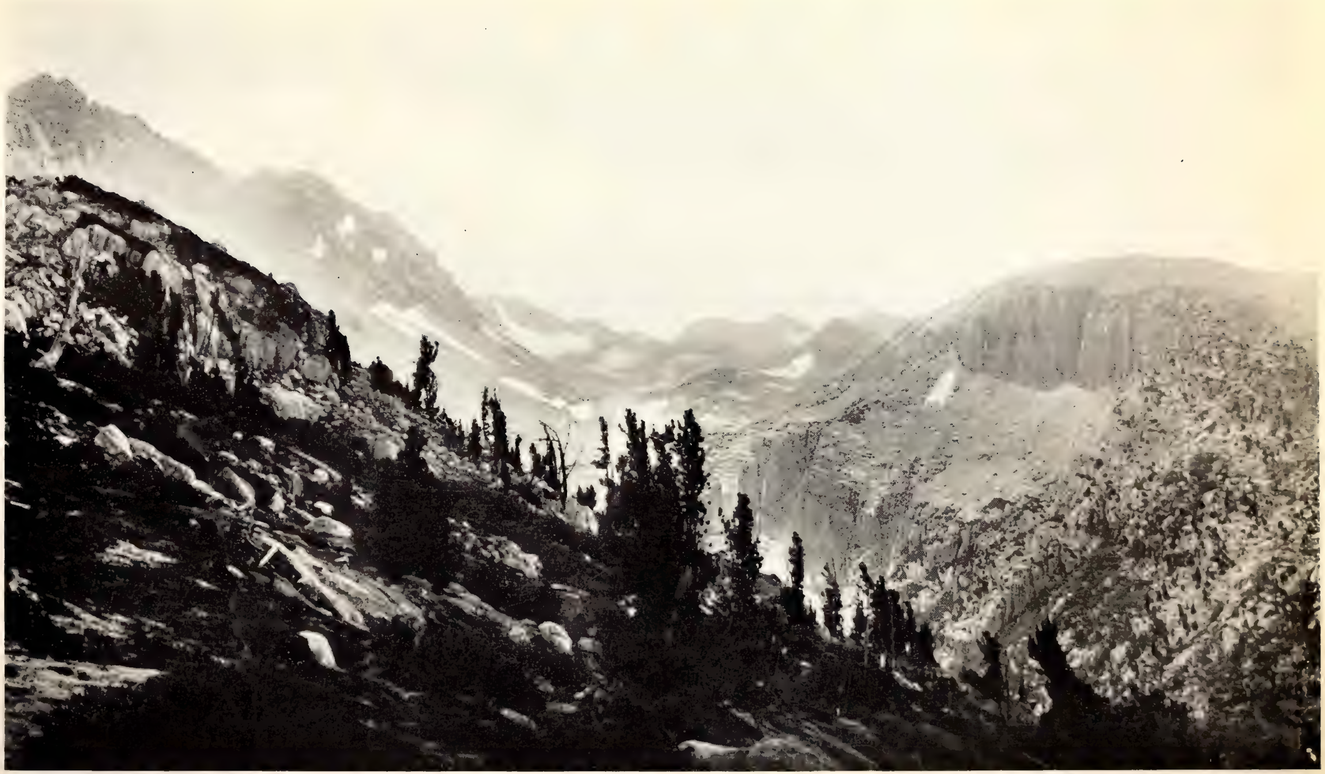
ON THE 12th of June, 1917, we left Cascada, the terminus of the San Joaquin and Eastern Railway, with knapsacks and outfits weighing between fifty-five and sixty pounds apiece. My companion was Mr. H. H. Bliss of the University of California. We traveled via Huntington Lake and Badger Flat to Kaiser Pass, where we had a fine view across the South Fork of the San Joaquin of Saddle Peak, Red and White Mountain, Mount Abbott, Mount Gabb and others. The South Fork seemed larger than the Merced at Yosemite. We had a bath in the hot sulphur spring, then crossed the suspension bridge and went onward.

Leaving the trail, we explored a peculiar rock mesa which we had seen from the pass. It was of volcanic nature and had vertical cliffs, accessible in only one or two places. We called it "Jericho Mesa." We next came to Mono Meadow and then to Vermilion Valley, where we passed through some aspen thickets and noted many evidences of avalanches. On leaving Mono Creek we entered a country with no trails, and going on into the Second Recess, climbed the steep right bank of Mills Creek at about nine thousand feet.

Here we discarded our moccasins, put on caulked shoes and began "hitting the snow." On the way to the pass a large coyote was seen, and the tracks of many others were noticed in the snow. We called it "Coyote Pass" (12,200 feet). Leaving our packs here, we started for Mount Gabb, and finding only a few steep places, reached the summit about two o'clock. The reward was one of the finest views I have ever seen—a great vista of gigantic peaks, rock-masses and snow. Finding no evidence that the peak had been climbed before, we made out a statement, placed it in a "dehydro" can and left it in a cairn on the summit. The elevation marked on the map is 13,700 feet.

We made a speedy descent, resumed our packs and started

CONNESS GLACIER FROM THE MOUNTAIN SUMMIT
Photo by Walter L. Huber



FOURTH RECESS, FROM THE MONO TRAIL
Photo by Paul Redington

on. The great shadow of the mountain warned us that we had but three hours of daylight in which to get down to timber line. The packs were heavy and we were tired and the shore line of Lake Italy is a long one. As one weary pilgrim put it, "That lake is strung out like a piece of macaroni!" So it seemed quite a time before camp was made, at 10,800 feet, in the Hilgard branch of Bear Creek. The nearby peaks were bathed in the beautiful pink of the alpenglow.

Next day we went on down Bear Creek, crossed the branch on a rough log bridge about a quarter of a mile above the junction, and continued on up the right bank of the East Fork. Here we had to make our first ford. The water was not up to our waists, but there were ice-floes near and H. H. did not like the temperature. A little farther on we left our packs again and climbed Seven Gables (13,066 feet). There were a few cliffs and one chimney with slide-rock, but most of the climb was plain snow-plugging. So far as we know, the peak had been climbed only by Messrs. Le Conte, Cory and Hutchinson before us. The next day we went on to a gap ahead which we christened "Hardscrabble Pass" (about 12,200 feet), then made quick time over the snow down to Piute Creek in French Cañon. We made camp here, though we walked farther down to the junction with the San Joaquin and saw the fine new bridge across the creek.

On our way up the stream the following day we saw a big porcupine, and had great fun trying to get him to pose for a photograph. Passing on up Piute Creek, we got a fine view of Mount Humphreys (to the north) and at last reached Piute Pass. We noticed that some timber extended clear to the top (11,400 feet). Plunging down through the soft snow, we followed the North Fork of Bishop Creek to a wooded region called Bishop Park. Farther on we came to the intake for one of a series of hydro-electric stations and spent some time examining the gate mechanism. We were then being scrutinized by the watchman, not only because of our unshaven and vagabondish appearance, but for a reason which will appear later.

Following the pipe line, we soon reached Andrews' Camp, where we were welcomed by the proprietor. We had been thirteen days from Cascada and our packs weighed about thirty-seven pounds each.

After resting and loading up with groceries we were ready to depart. Mr. Andrews called us aside and told us that the telephone wires were hot with instructions for the men at the next dam to be on the lookout for "two fellers with packs who acted suspicious and might be German dynamiters!" We thanked him and started. Our packs now weighed sixty-eight pounds apiece, so we found that one mile was far enough for that evening. We went on up Bishop Creek, past South Lake, and at the end of the day came to the most beautiful campsite of the trip on the shore of Long Lake. The lake is set like the jewel of the poet, between great colored mountains. Our camp was in a little clump of limber pine and tamrac. The elevation is 10,800 feet. We were awakened by our familiar friend the Gambel sparrow, who sings just before dawn, and we rose while the stars were still visible. The lake was frozen nearly over.

On our way up toward the pass we met two young men from Bishop, with five burros, who were returning after their second attempt to get their animals over. After a long hard climb we reached Bishop Pass and crossed into Fresno County again. Our course was now over great snow-fields into the headwaters of the Middle Fork of the Kings. It was after midday and the snow was soft. My companion was ahead breaking trail when he went through the crust and wrenched his ankle. Luckily we had reached timber line, and we soon found a good camping-place on the Dusy branch, where we stayed for two days. I explored a little, finding one easy pass (for knapsackers) over into the Palisade Basin. We finally got off again, myself with the larger load, down, down, into the cañon of the Middle Fork. The injured ankle improved rapidly and we made the junction of the Dusy branch and the river. We here struck a recently completed portion of the John Muir Trail, so travel was easy. After awhile the trail stopped. The workmen had blasted a way half the distance up a water-worn cliff and then quit for the season. By using the rope we worked our way up a cleft in the rock. Toiling upward slowly, we camped on the edge of a lakelet, about a mile below Helen Lake. Ice had to be broken before we could get water for cooking.

We were up next morning while it was yet dark, and got breakfast as the alpenglow lit up the mountain side. Then followed a great climb over the snow, where little ice-chunks made a curious tinkling sound when kicked off by our shoes. One ice-cave with some fine stalactites was seen. Reaching Muir Pass (12,059 feet), we crossed into the Evolution Creek region, then found a way directly opposite the middle of Wanda Lake over into North Goddard Creek. We dubbed this "Laggard Pass," the name telling how we felt. Trudging onward down the creek, we passed one fine lake and camped at the first scrubby timber near another. This was our highest camp—11,000 feet. Leaving the left bank of the creek about a mile above where it enters the South Fork of the San Joaquin, we worked over into the cañon of the main stream. Here at short intervals the river leaps gleefully in most beautiful waterfalls.

A good place to ford was found about a hundred and fifty yards above where North Goddard Creek comes in, and H. H. spoke "full and free" concerning the coldness of the water, the swiftness of the stream and the roughness of the stones on the bottom. The trail led on along the bank of the clear, rushing river. We missed the Hell-For-Sure trail and camped on the very brink of a fine fall, whose roar lulled us to sleep. It was the most romantic of all our camps. Up at dawn, we "hit the side of the cañon." Using the map, also the note of Mr. Le Conte's party,* we came up near Red Mountain. Here we had to go down hill some distance, and bearing to the left, were forced to cross a mile or more of slide-rock, but we finally reached the pass with the appropriate name (11,300 feet). A great contrast was offered by the views to the east and to the west. The former was one of a country smothered in snow, the latter of lakes in their natural blue color, some bare earth, and in the distance trees and green meadow.

This point marked this portion of the trip into two parts, the remainder being in what seemed low country. After some tramping over granite, we came to forest country and again heard the "harp of the winds" in the trees. This was a well-ducked and well-marked trail through woods sometimes open and cheerful, sometimes dark and gloomy. Walking on through Post Corral Meadows, we reached Sand Meadow (Helms Creek), where I prepared for a little nap. H. H. started fishing. I was awakened by wild yells, and as soon as I could get my eyes open beheld H. H., the rod bent almost double, struggling with a large trout. After helping him get it ashore (it was almost a foot long), I returned to my nap. Very soon there was a duplication of the performance, so I gave it up and started supper. We got eleven beauties all told, the first real fishing of the trip. They had the ordinary markings, and what was new to me, the fine bright red spots of the Eastern brook trout.

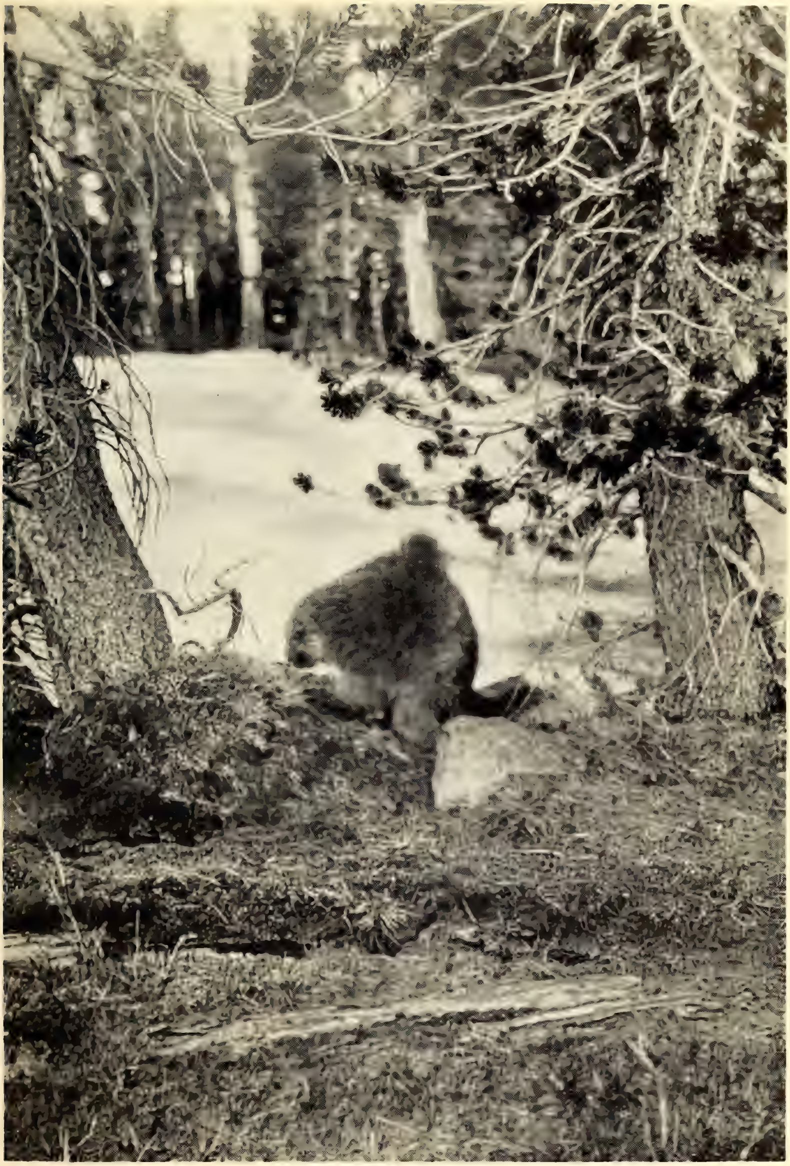
---

* See Sierra Club Bulletin, vol. II, no. 5, page 260.

Next day we went on upward, noting a pair of fine gray foxes on our way through the forest. The trail here passed through magnificent forests of red fir, tamrac, white fir and sugar pine. Near by dozens of beautiful snow plants were seen. We finally left the trail and struck out across country to try to find the McKinley Grove of Big Trees, marked rather indefinitely on the maps. Upon climbing to the top of a huge rock, great was our joy when we made out a number of the sequoias among the thousands of trees visible. After plunging through the brush we came upon one of the giant redwoods and knew that we had found the grove. The impression was that of entering a great cathedral, and we went in with our hats off. The wonderful coloring and size of the trees are always soul-stirring. The grove is a small one, but is almost unspoiled by tourists, and pin-headed officials have not yet labeled the trees "General Wellington," "General Napoleon," etc.

We now resumed our journey, and passing down Laurel Creek, approached the Dinkey Ranger Station. The first man we talked with since leaving Bishop Pass was a cook for the outfit of J. Robinson, well known to Sierra Club people. We rested at the station, then trudged on over a dusty road, thinking of the clean and dustless country left behind. Luckily, a delightful camp-spot was found, where a clear stream gushed out of a fragrant group of azalea.

Our walk next day was through a most desolate region of



PORCUPINE, PIUTE CREEK
Photo by H. H. Bliss

PEAK NEAR LONG LAKE
Photo by A. L. Jordan

stumps and rotting timber; the forest had been lumbered and no effort made to burn refuse. It was very depressing all the way to Shaver Lake. At the lumber company's store we got a few luxuries and then went on. The following day brought us to the Stevenson Creek station of the San Joaquin and Eastern, a short distance from where we started. We were not yet out of food, though we had been out just fifteen days from Andrews' Camp. With a little care, we could have gone seventeen or eighteen days.

◆

NOW the sun has come out after the storm, how bright, how full of freshness and tender promise and fragrance is the new world! The woods putting forth new leaves; it is a memorable season. So hopeful! These young leaves have the beauty of flowers . . . After a storm at this season, the sun comes out and lights up the tender expanding leaves, and all nature is full of light and fragrance, and the birds sing without ceasing, and the earth is a fairyland. *Thoreau's Journal*

THE JUNIPERS OF LAKE VALLEY

By Cornelius Beach Bradley

ONE day last summer, while driving through Lake Valley at the upper end of Lake Tahoe, I was surprised to see among the yellow pines and tamaracks of the open forest certain trees that seemed to me new. I thought that I knew all the trees in that part of the Sierra. My companion pronounced them tamaracks *(Pinus contorta* var. *murrayana),* which indeed they greatly resembled in stature and in habit. But the tawny-gray fibrous bark and the finer sprays of foliage convinced me that they could not be that. On examination at a later time we found that they were junipers, but so unlike the forms of *Juniperus occidentalis* with which we were familiar that we were compelled to suppose them to be of a different species—possibly one that had worked its way over from the eastern side of the range through Luther's Pass. But on my return to Berkeley the specimens of foliage and fruit which I had brought with me were identified by Dr. H. M. Hall as undoubtedly those of *J. occidentalis.*

The features of these trees which had puzzled me were: (1) their unusual situation on the floor of a deep sheltered valley, instead of on the exposed rocky slopes of the Sierra ridges; (2) their close association with other conifers instead of being scattered about singly in the open; (3) their stature, reaching eighty or ninety feet—twice or thrice that of the tree in its usual habitat; (4) their symmetrical shape and aspiring habit which here persist even to old age. For, while this feature is common throughout the whole group of cypress-like trees, and regularly appears in the early life of this species, it is lost long before maturity by those individuals which face the Sierra storms unprotected.*

Another feature which impressed us later was the frequent occurrence in this group of the twin or double tree, as seen in plates CCII and CCIV. This also occurs, but I think not so frequently, among junipers which grow on the exposed mountain ridges. The double tree might in reality be a single one which forked very early in life because of the loss of its leading shoot; or it might be two trees which, germinating near each other, grew at length large enough to touch and then to mingle into one common trunk. But why should this be more common among these junipers than among the yellow pines and tamaracks about them? Here surely is an interesting problem for some one to solve.

---

* See plates CC and CCI.

Here then was a group of some hundreds of these trees scattered about among the pines of the valley floor between Myers' station and the forest-ranger's cabin some two miles to the south. They seemed moreover to be strictly confined to this area. None were found either to the north or to the south of it. Right through the center of it runs the automobile road to Luther's Pass and Markleeville. Hundreds of campers and tourists pass through it every season. Yet it seems never to have come to the notice of our botanists. Indeed Dr. W. L. Jepson tells me that he has never known of such a group of these trees, although he has known of exceptional individuals of their stature and habit.[†]

The special characters of this group are due no doubt to the richer soil in which they grow, and to the protection against storms afforded both by the high ridges east and west of them and by the other forest trees growing about them. Since similar conditions are by no means uncommon in the Sierra at this altitude, it seems altogether likely that such groups might be found elsewhere, if people were only on the lookout for them.[‡] I hope that members of the Sierra Club and other persons interested in such things will, on their summer rambles, keep this matter in mind, and especially that they will not fail to report their findings.

The fact that a number of these trees had recently been cut to furnish posts for some miles of fencing on the road to Tallac, led me to take up the question of their age. The trees felled for this purpose were all vigorous and clean-growing junipers in their young prime, from two to three feet in diameter, and from sixty to seventy feet high. From my notes I select the following typical counts of the annual rings of growth.

[†] In his monumental *Silva of California* (1910) the only notice of this exceptional type is the following sentence: "In protected localities they present regular figures forty to sixty-five feet high, and sometimes six or seven feet in diameter."

[‡] Since writing the above I have learned of the existence of a somewhat similar group on the South Yuba, between Cisco and the Summit.

No. 1. Prostrate trunk, one of the two trunks of a double tree. Section at 10 feet from the ground. Diameter 24 inches, 247 rings.

No. 2. Stump. Section at three feet from the ground. Diameters 27 and 36 inches, 236 rings.

No. 3. Prostrate half of a double tree which had stood 70 feet high. Diameter at 10 feet above the ground, 28 inches, 255 rings.

No. 4. A fine double tree, still in vigorous growth; each trunk nearly five feet in diameter, and the combined trunk nearly nine feet. A superficial cut to a depth of 1⅛ inches showed 40 layers of growth.

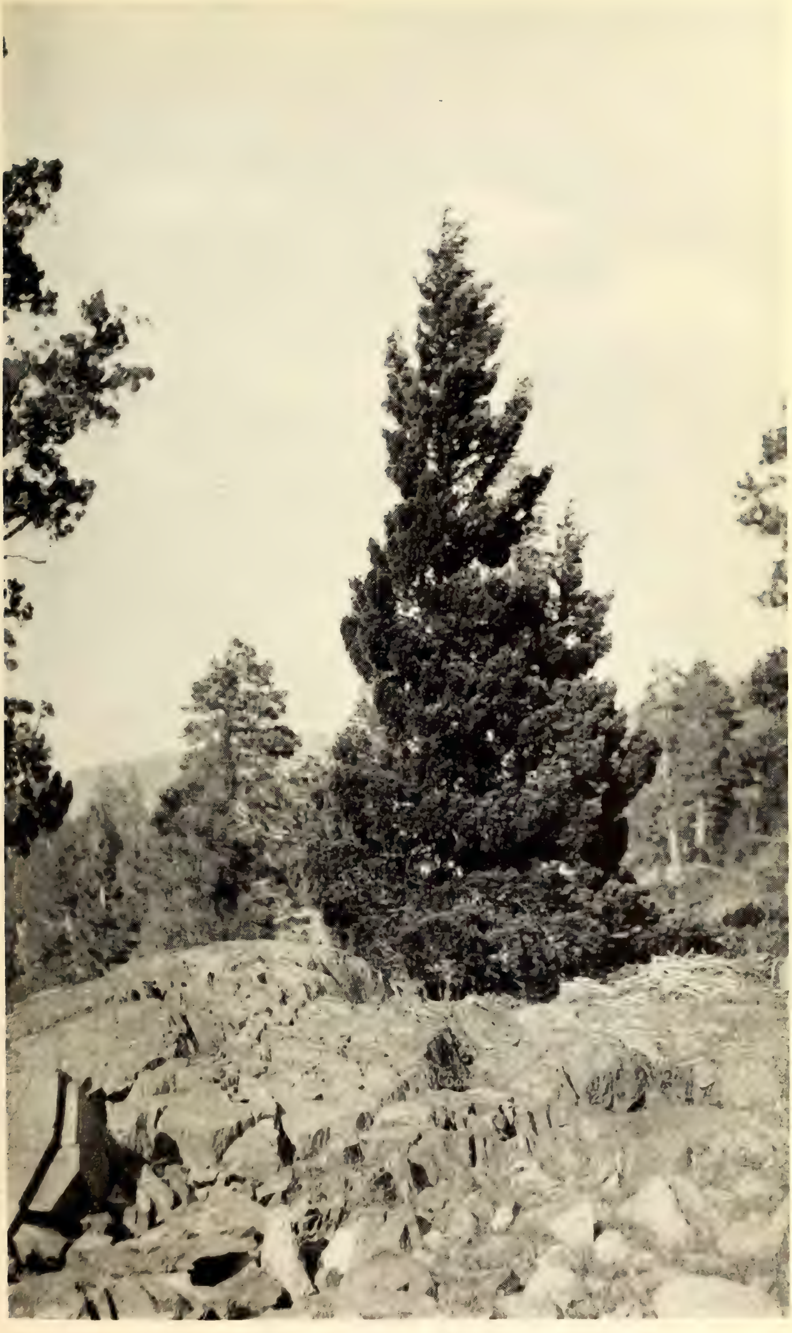
In order to bring these results to bear upon the question of the age of junipers growing under conditions which are for them more usual than those of Lake Valley, we later cut down a vigorous young tree growing on a rocky ledge in Glen Alpine, near Lily Lake, and brought a section of the trunk to Berkeley, where it is now in the Herbarium of the University. This tree is—

No. 5. Diameters, 14 and 18 inches. Rings, 230.§

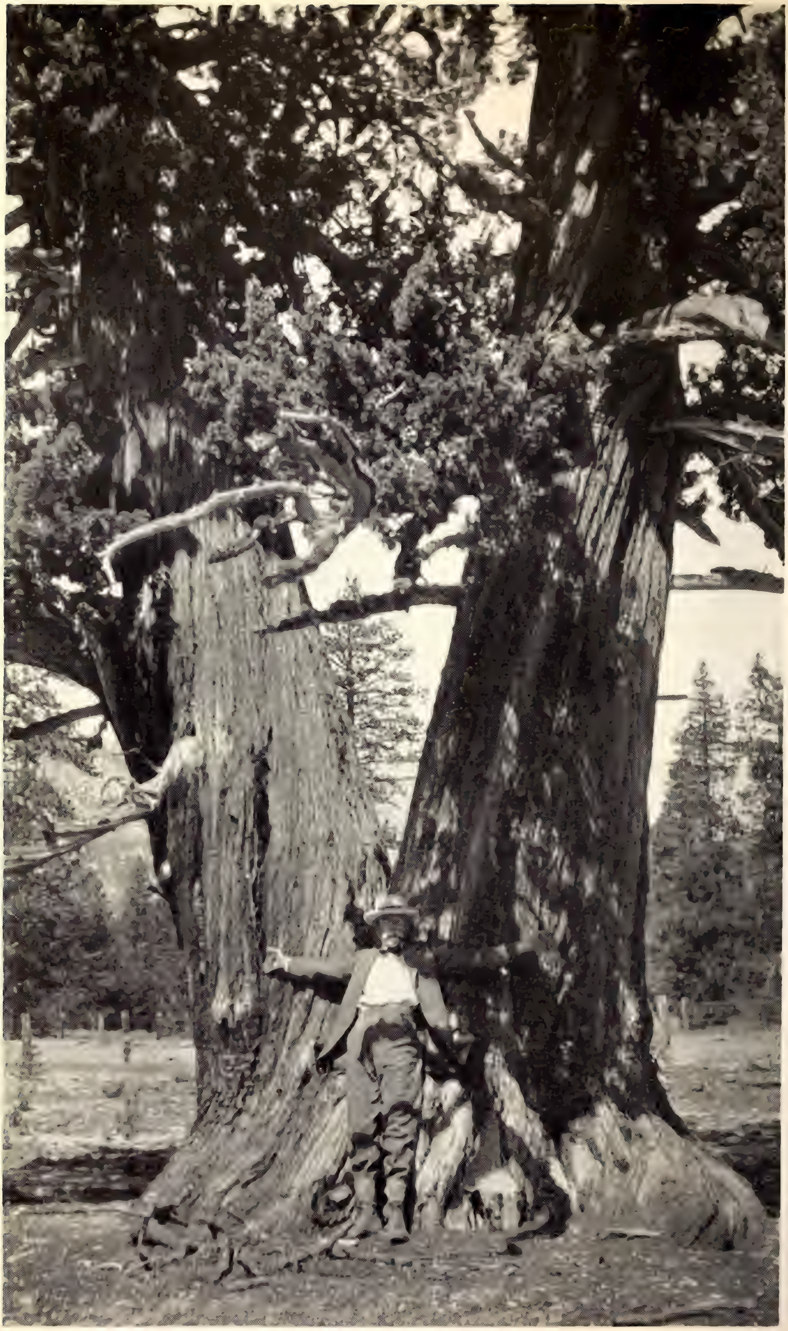
This last tree from the mountain side proved to be a very instructive parallel to those selected as typical of growth on the valley floor. For while the age was nearly the same throughout the whole group, the measured diameters of the valley trees averaged nearly twice as great as that of the mountain tree. All this was interesting and suggestive, but it did not go far enough. We need to know also the age of the much larger trees which are frequently encountered—from five to seven feet, as stated in the *Silva;* and trees considerably larger than that have been credibly reported. Direct and conclusive answer to this question can, of course, be had only by felling

---

§ The upper surface was chosen for measurement because it was clear of the swell about the roots. The count of rings could not be made on this surface because of a cavity at the heart. It was therefore made on the lower surface, and showed 234 rings. An allowance of 4 rings was then made for the difference of 13 inches in height.



YOUNG JUNIPER, GLEN ALPINE
Photo by Harold C. Bradley



BIG TWIN JUNIPER
Photo by Harold C. Bradley

some of these great trunks and making an actual count of the rings. This, however, it was impossible to do in what remained of the vacation.

Nevertheless it seemed that the data already secured should furnish sufficient basis for a good approximation to the answer desired. Of course no simple scheme of proportionate increase as between age and diameter would avail, since age increases regularly by addition of equal increments; whereas increase of diameter is by unequal increments, greatest at a point very early in the life of the tree, and diminishing thereafter to the end. The Glen Alpine tree, for example, could not by any possibility have doubled its diameter of 16 inches in twice its 230 years of age. Still less could it have doubled that again to 64 inches at 920 years of age. Yet this last diameter—by no means extraordinary among mountain junipers—could hardly have been reached short of 1400 or 1500 years!

Thus there was opened up for these trees a vista of life unexpectedly long, equalling perhaps even that of the giant sequoias. My thoughts turned at once to a study made many years ago of a magnificent specimen of that race in the Calaveras Grove, felled while in full vigor of growth at the age of 1240 years. By careful count and measurement I secured a complete record of its growth through the four centuries of its youth and the eight centuries and more of its glorious prime.

Here then was the clue I needed. With those ages and measurements¶ as coördinates, was plotted the curve of growth actually made by that tree throughout its entire life.**

It is No. 1 of the accompanying chart, and it is to serve as a norm of growth with which we may compare, and thus forecast, the growth of other long-lived trees of kindred stock and similar figure, growing in the same climate and in the same re-

---

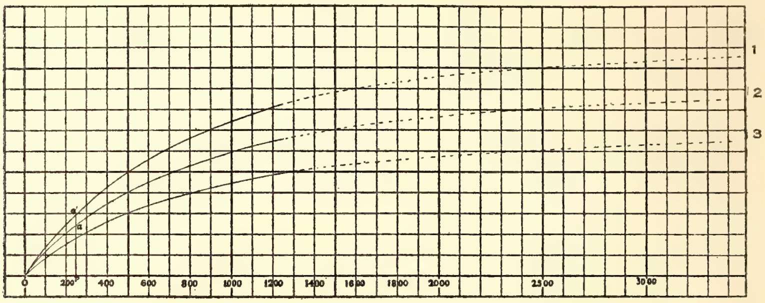
¶ The measurement for each 200-year period was as follows:

Years	Radius measurement	Years	Radius measurement
200	25 inches	800	66 inches
400	43 "	1000	74 "
600	56 "	1200	81 "

The measurements presently to be used in plotting the growth of the junipers are diameter-measurements. This is done merely to facilitate comparison of the different curves by bringing them nearer together, and does not at all affect the conclusions reached concerning the growth of the junipers. Should the diameter of the sequoia be needed, it may, of course, be had by simply doubling these measurements.

** Since the curve is quite regular, it has been possible to continue it in dotted line, with little risk of error, beyond the actual life-time of the tree to the 3000-year mark. The curves of the junipers have been carried out on the same plan.

gion — namely, these junipers. Barring extraordinary accidents, the curve of their growth should be essentially like that of the sequoia, having the same time-scale, and differing only in the scale of magnitude—that is, the ordinates of the juniper curve should at all points be proportional to those of the sequoia curve. The problem is therefore to find the constant ratio between the two.



Turning now to the first juniper of the above list, we see that the initial point of its curve must of course be at zero of the century scale. A second point is also known, determined by its age of 247 years (at P) and its diameter of 24 inches (Pa). By continuing the vertical coördinate Pa to the sequoia curve at *á,* we get the ordinate of that curve at the 247-year point Pá, —that is, the radius-measurement of the sequoia at that age, 29.5 $\frac{Pa}{P\acute{a}}$ or 0.8 is therefore the ratio sought. Applying this ratio in succession to each of the 200-year measurements of the sequoia growth, we shall have the corresponding measurements of our juniper according to our forecast, which, when plotted, give us curve No. 2 of the chart. In like manner the age and measurements of the Glen Alpine tree result in curve No. 3 of the chart.

The scheme assumes that by the time such a tree as these has reached the age, say of 250 years, it has struck its true pace—has found its proper scale of growth. Forecasting on this basis the "expectation of growth" for these two trees, we find that the mountain juniper might attain the five feet of diameter assigned to its class at about the age of 1300 years, and the valley juniper the seven feet assigned to its class at about 1500. The forecast is probably a little too favorable for the junipers which occupy exposed positions on the mountain ridges. For the sequoia-record which serves as the basis of the forecast is that of a tree uncommonly well defended from the accidents and stresses which sap the strength and check the growth of middle and later life. Serious damage by fire it seems to have escaped altogether. The deadly freezing and drying winds of winter which the junipers must face singly as they stand scattered about on the storm-beaten heights, could not harm this sequoia deep in its narrow dell and girt about by its giant brethren. So far then as this consideration has weight, it points to a date still later than that just now named for the attainment of its supposed maximum size.

There is also another consideration which seems to point in the same direction. The largest junipers that I have chanced upon have always been found far up on the mountain flanks. Their curve of growth therefore should be represented not by curve No. 2, but by the more pinched and starved No. 3. I feel sure that I have seen among them trees of more than seven feet in diameter, but never having had the wit to measure them, I cannot insist upon that.—Let their maximum be seven feet in diameter. According to curve No. 3 how old should they be? One actually hesitates to name the figure.

On the other hand, the enormous age which used to be claimed for the giant sequoias has been steadily cut down by the increase of definite knowledge, until now it appears that the greatest age demonstrated by actual counts is no more than 2200 or 2300 years. It would seem then that the juniper is actually in the race of life alongside of its big brother the sequoia!

May 16, 1917

STUDIES IN THE SIERRA

BY JOHN MUIR

NO. IV. GLACIAL DENUDATION

GLACIAL denudation is one of the noblest and simplest manifestations of sun-power. Ocean water is lifted in vapor, crystallized into snow, and sown broadcast upon the mountains. Thaw and frost, combined with the pressure of its own weight, change it to ice, which, although in appearance about as hard and inflexible as glass, immediately begins to flow back toward the sea whence it came, and at a rate of motion about equal to that of the hour-hand of a watch.

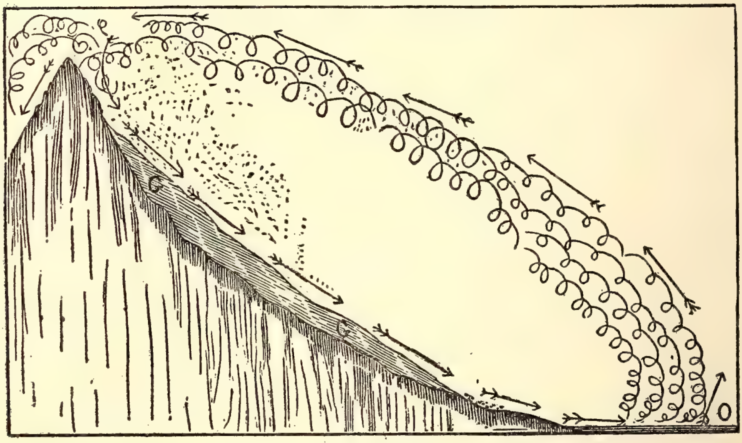
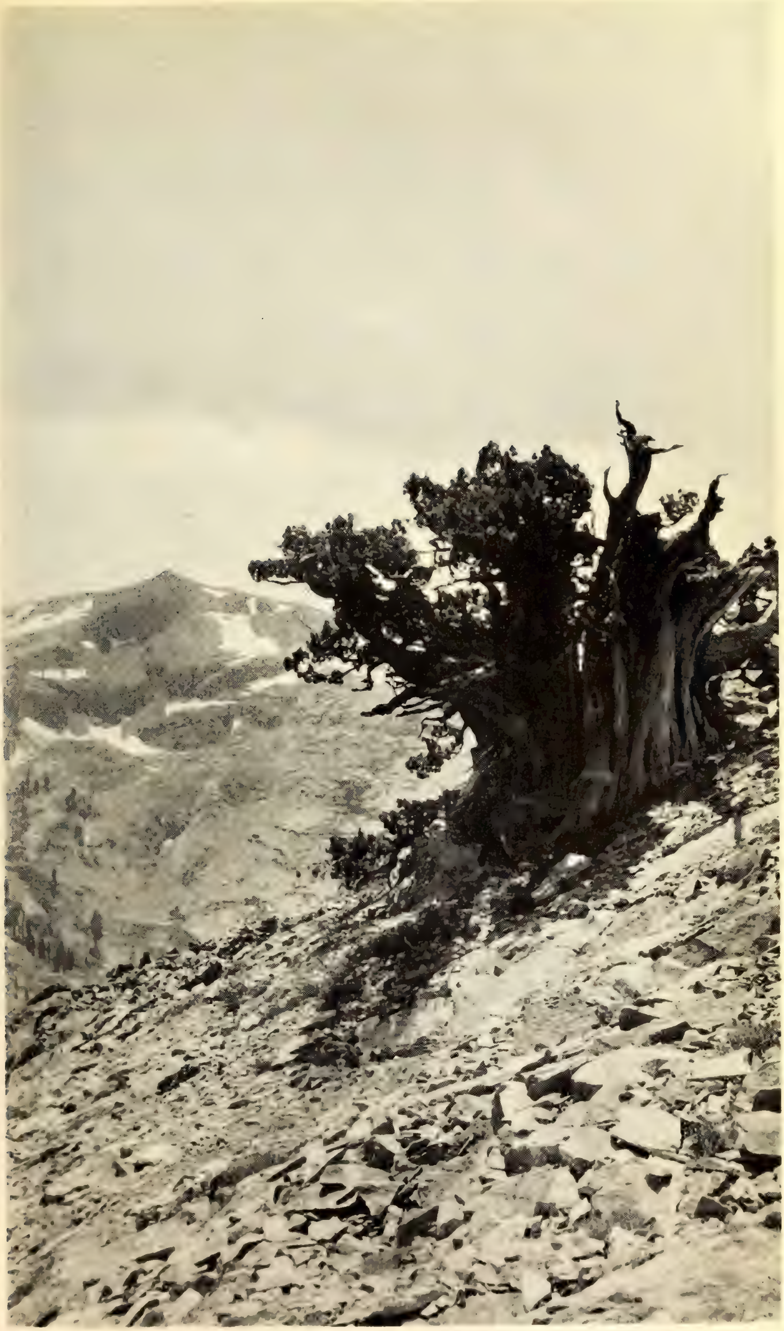


FIG. 1.

This arrangement is illustrated in Fig. 1, wherein a wheel, constructed of water, vapor, snow, and ice, and as irregular in shape as in motion, is being sun-whirled against a mountain-side with a mechanical wearing action like that of an ordinary grindstone.

In north Greenland, Nova Zembla, the arctic regions of Southeastern Alaska and Norway, the snow supply and general climatic conditions are such that their glaciers discharge di-



OLD JUNIPER, OVER TEN FEET AT BASE
On Tamarack Trail, Ralston Peak in distance
Photo by Harold C. Bradley

GIANT JUNIPER IN CATHEDRAL CAÑON, YOSEMITE NATIONAL PARK
Photo by William E. Colby

rectly into the sea, and so perhaps did all first-class glaciers when in their prime; but now the world is so warm, and the snow-crop so scanty, most glaciers melt long before reaching the ocean. Schlagenweit tells us those of Switzerland melt on the average at an elevation of about 7400 feet above sea-level; the Himalaya glacier, in which the Ganges takes its rise, does not descend below 12,914 feet;* while those of our Sierra melt at an average elevation of about 11,000 feet. In its progress down a mountain-side *a glacier follows the directions of greatest declivity,* a law subject to very important modifications in its general application. Subordinate ranges many hundred feet in height are frequently overswept smoothly and gracefully without any visible manifestations of power. Thus, the Tenaya outlet of the ancient Tuolumne *mer de glace* glided over the Merced divide, which is more than 500 feet high, impelled by the force of that portion of the glacier which was descending the higher slopes of Mounts Dana, Gibbs, and others, at a distance of ten miles.

The deeper and broader the glacier, the greater the horizontal distance over which the impelling force may be transmitted. No matter how much the courses of glaciers are obstructed by inequalities of surface, such as ridges and cañons, if they are deep enough and wide enough, and the *general* declivity be sufficient, they will flow smoothly over them all just as calm water-streams flow over the stones and wrinkles of their channels.

PRESENT CONDITION OF THE SIERRA CONSIDERED WITH REFERENCE TO GLACIAL ACTION

The most obvious glacial phenomena presented in the Sierra are: first, polished, striated, scratched, and grooved surfaces, produced by the glaciers slipping over and past the rocks in their pathways. Secondly, moraines, or accumulations of mud, dust, sand, gravel, and blocks of various dimensions, deposited by the glaciers in their progress, in certain specific methods. Thirdly, sculpture in general, as seen in cañons, lake-basins, hills, ridges, and separate rocks, whose forms, trends, distribution, etc., are the peculiar offspring of glaciers.

---

* According to Captain Hodgson.

In order that my readers may have clear conceptions of the distribution and comparative abundance of the above phenomena, I will give here a section of the west flank from summit to base between the Tuolumne and Merced rivers, which, though only a rough approximation, is sufficiently accurate for our purposes. The summit region from D to C (Fig. 2) is composed of metamorphic slates, so also is most of the lower region, B to A. The middle region is granite, with the exception of a few small slate-cappings upon summits of the Merced and Hoffmann spurs. With regard to the general topography of the section, which may be taken as fairly characteristic of the greater portion of the range, the summit forms are *sharp and angular,* because they have been *down*-flowed; all the middle and lower regions comprising the bulk of the range have *rounded forms,* because they have been *over*flowed. In the summit region all the glacial phenomena mentioned above are found in a fresh condition, simply on account of their youthfulness and the strong, indestructible character of the granite. Scores of small glaciers still exist on the summit peaks where we can watch their actions. But the middle region is the most interesting, because, though older, it contains all the phenomena, on a far grander scale, on account of the superior physical structure of granite for the reception of enduring glacial history.

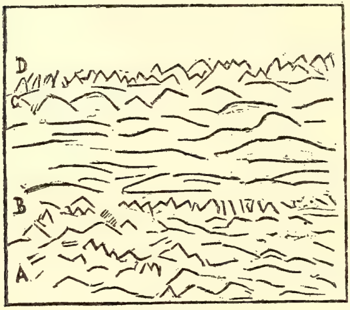


Fig. 2.

Notwithstanding the grandeur of the cañons and moraines of this region, with their glorious adornments, stretching in sublime simplicity delicately compliant to glacial law, and the endless variety of picturesque rocks rising in beautiful groups out of the dark forests, by far the most striking of all the ice phenomena presented to the ordinary observer are the polished surfaces, the beauty and mechanical excellence of which no words will describe. They occur in large irregular patches many acres in extent in the summit and upper half of the middle regions, bright and stainless as the untrodden sky. They reflect the sunbeams like glass, and though they have been subjected to the corroding influences of the storms of countless thousands of years, to frosts, rains, dews, yet are they in many places unblurred, undimmed, as if finished but yesterday. The attention of the mountaineer is seldom arrested by moraines however conspicuously regular and artificial in form, or by cañons however deep, or rocks however noble, but he stoops and rubs his hand admiringly on these shining surfaces, and tries hard to account for their mysterious smoothness. He has beheld the summit snows descending in booming avalanches, but he concludes that these cannot be the work of snow, because he finds it far beyond the reach of avalanches; neither can water be the agent, he says, for he finds it on the tops of the loftiest domes. Only the winds seem capable of following and flowing in the paths indicated by the scratches and grooves, and some observers have actually ascribed the phenomenon to this cause. Even horses and dogs gaze wonderingly at the strange brightness of the ground, and smell it, and place their feet upon it cautiously; only the wild mountain sheep seems to move wholly at ease upon these glistening pavements.

This polish is produced by glaciers slipping with enormous pressure over hard, close-grained slates or granite. The fine striations, so small as to be scarcely visible, are evidently caused by grains of sand imbedded in the bottom of the ice; the scratches and smaller grooves, by stones with sharp graving edges. Scratches are therefore most abundant and roughest in the region of metamorphic slates, which break up by the force of the overflowing currents into blocks with hard cutting angles, and gradually disappear where these graving tools have been pushed so far as to have had their edges worn off.

The most extensive areas of polished surfaces are found in the upper half of the middle region, *where the granite is most solid in structure and contains the greatest quantity of silex.* They are always brighter, and extend farther down from the axis of the range, on the *north sides* of cañons that trend in a westerly direction than on the south sides; because, when wetted by corroding rains and snows, they are sooner dried, the north sides receiving sunshine, while the south walls are mostly in shadow and remain longer wet, and of course their glaciated surfaces become corroded sooner. The lowest patches are found at elevations of from 3000 to 5000 feet above the sea, and thirty to forty miles below the summits, on the sunniest and most enduring portions of vertical walls, protected from the drip and friction of water and snow by the form of the walls above them, and on hard swelling bosses on the bottom of wide cañons, protected and kept dry by broad boulders with overhanging eaves.

MORAINES

In the summit region we may watch the process of the formation of moraines of every kind among the small glaciers still lingering there. The material of which they are composed has been so recently quarried from the adjacent mountains that they are still plantless, and have a raw, unsettled appearance, as if newly dumped, like the stone and gravel of railroad embankments. The moraines belonging to the ancient glaciers are covered with forests, and extend with a greater or less degree of regularity down across the middle zone, as we have seen in Study No. III. Glacial rock forms occur throughout this region also, in marvelous richness, variety, and magnitude, composing all that is most special in Sierra scenery. So also do cañons, ridges and sculpture phenomena in general, descriptions of whose scenic beauties and separate points of scientific interest would require volumes. In the lower regions the polished surfaces, as far as my observations have reached, are wholly wanting. So also are moraines, though the material which once composed them is found scattered, washed, crumbled, and reformed, over and over again, along river-sides and over every flat, and filled-up lake-basin, but so changed in position, form of deposit, and mechanical condition, that unless we begin with the undisturbed moraines of the summit region and trace them carefully to where they become more and more obscure, we would be inclined to question the glacial character of these ancient deposits.

The cañons themselves, the valleys, ridges, and the large rock masses are the most unalterable and indestructible glacial phenomena under consideration, *for their general forms, trends, and geographical position are specifically glacial.* Yet even these are so considerably obscured by post-glacial erosion, and by a growth of forests, underbrush, and weeds, that only the patient and educated eye will be able to recognize them beneath so many veils.

The ice-sheet of the glacial period, like an immense sponge, wiped the Sierra bare of all pre-glacial surface inscriptions, and wrote its own history upon the ample page. We may read the letter-pages of friends when written over and over, if we are intimately acquainted with their handwriting, and under the same conditions we may read Nature's writings on the stone pages of the mountains. Glacial history upon the summit of the Sierra page is clear, and the farther we descend, the more we find its inscriptions crossed and recrossed with the records of other agents. Dews have dimmed it, torrents have scrawled it here and there, and the earthquake and avalanche have covered and erased many a delicate line. Groves and meadows, forests and fields, darken and confuse its more enduring characters along the bottom, until only the laborious student can decipher even the most emphasized passages of the original manuscript.

METHODS OF GLACIAL DENUDATION

All geologists recognize the fact that glaciers wear away the rocks over which they move, but great vagueness prevails as to the size of the fragments, their abundance, and the way in which the glacial energy expends itself in detaching and carrying them away. And, if possible, still greater vagueness prevails as to the forms of the rocks and valleys resulting from erosion. This is not to be wondered at when we consider how recently glacial history has been studied, and how profound the silence and darkness under which glaciers prosecute their works.

In this article I can do little more for my readers than indicate methods of study, and results which may be obtained by those who desire to study the phenomena for themselves. In the first place, we may go to the glaciers themselves and learn what we can of their weight, motions, and general activities*—

---

* Here I would refer my readers to the excellent elementary works of Agassiz, Tyndall and Forbes.

how they detach, transport, and accumulate rocks from various sources. Secondly, we may follow in the tracks of the ancient glaciers, and study their denuding power from the forms of their channels, and from the fragments composing the moraines, and the condition of the surfaces from which they were derived, and whether these fragments were rubbed off, split off, or broken off.

The waters which rush out from beneath all glaciers are turbid, and if we follow them to their resting-places in pools we shall find them depositing fine mud, which, when rubbed between the thumb and finger, is smooth as flour. This mud is ground off from the bed of the glacier by a smooth, slipping motion accompanied with immense pressure, giving rise to the polished surfaces we have already noticed. These mud particles are the smallest chips which glaciers make in the degradation of mountains.

Toward the end of the summer, when the winter snows are melted, particles of dust and sand are seen scattered over the surfaces of the Sierra glaciers in considerable quantities, together with angular masses of rock derived from the shattered storm-beaten cliffs that tower above their heads. The separation of these masses, which vary greatly in size, is due only in part to the action of the glacier, although they all are borne down like drift on the surface of a river and deposited together in moraines. The winds scatter down most of the sand and dust. Some of the larger fragments are set free by the action of frost, rains, and general weathering agencies; while considerable quantities are borne down in avalanches of snow, and hurled down by the shocks of earthquakes. Yet the glacier performs an important part in the production of these superficial effects, by undermining the cliffs whence the fragments fall. During my Sierra explorations in the summers of 1872 and 1873, almost every glacier I visited offered illustrations of the special action of earthquakes in this connection, the earthquake of March, 1872, having just finished shaking the region with considerable violence, leaving the rocks which it hurled upon the ice fresh and nearly unchanged in position.

But in all moraines we find stones, which, from their shape and composition, and the finish of their surfaces, we know were not thus derived from the summit peaks overtopping the glaciers, but from the rocks *past* which and *over* which they flowed. I have seen the north Mount Ritter Glacier and many of the glaciers of Alaska in the act of grinding the side of their channels, and breaking off fragments and rounding their angles by crushing and rolling them between the wall and ice. In all the pathways of the ancient glaciers, also, there remain noble illustrations of the power of ice, not only in wearing away the sides of their channels in the form of mud, but in breaking them up into huge blocks. Explorers into the upper portion of the middle granite region will frequently come upon blocks of great size and regularity of form, possessing some character of color or composition which enables them to follow back on their trail and discover the rock or mountain-side from which they were torn. The size of the blocks, their abundance along the line of dispersal, and the probable rate of motion of the glacier which quarried and transported them, form data by which some approximation to the rate of this sort of denudation may be

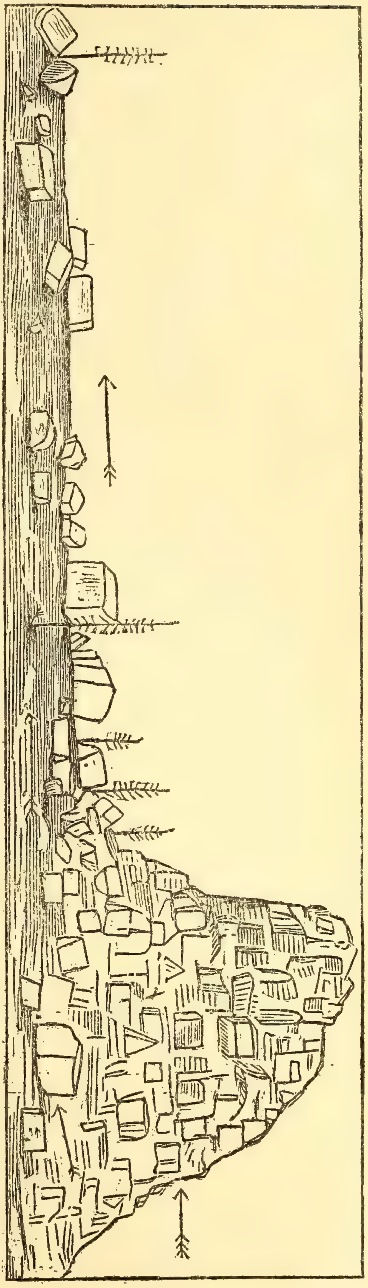


Fig. 3.

reached. Fig. 3 is a rock about two miles west of Lake Tenaya, with a train of boulders derived from it. The boulders are scattered along a level ridge, where they have not been disturbed in any appreciable degree since they came to rest toward the close of the glacial period. An examination of the rock proves conclusively that not only were these blocks—many of which are twelve feet in diameter—derived from it, but that they were *torn off its side* by the direct mechanical action of the glacier that swept over and past it. For had they simply fallen upon the surface of the glacier from above, then the rock would present a crumbling, ruinous condition—which it does not—and a talus of similar blocks would have accumulated at its base after there was no glacier to remove them as they fell; but no such talus exists, the rock remaining compact, as if it had scarcely felt the touch of a single storm. Yet, what countless seasons of weathering, combined with earthquake violence, could not accomplish, was done by the Tenaya Glacier, as it swept *past* on its way to Yosemite.

A still more striking and instructive example of side-rock erosion may be found about a mile north of Lake Tenaya. Here the glaciated pavements are more perfectly preserved than elsewhere in the Merced basin. Upon them I found a train of granite blocks, which attracted my attention from their isolated position, and the uniformity of their mechanical characters. Their angles were unworn, indicating that their source could not be far off. It proved to be on the *side* of one of the lofty elongated ridges stretching toward the Big Tuolumne Meadows. They had been quarried from the *base* of the ridge, which is ice-polished and undecayed to the summit. The reason that only this particular portion of the ridge afforded blocks of this kind, and so abundantly as to be readily traceable, is that the cleavage planes here separated the rock into parallelopipeds which sloped forward obliquely into the side of the glacier, which was thus enabled to grasp them and strip them off, just as the spikelets of an ear of wheat are stripped off by running the fingers down from the top toward the base. An instance where the structure has an exactly opposite effect upon the erodibility of the side of a rock is given in Fig. 4, where the cleavage planes separate it into slabs which overlap each other with reference to the direction of the glacier's motion, like the shingles of a roof. Portions of the sides of rocks or cañon walls whose structure is of the latter character always project, because of the greater resistance they have been able to offer to the action of the past-flowing glacier, while those portions whose structure is similar to that of the former example always recede.

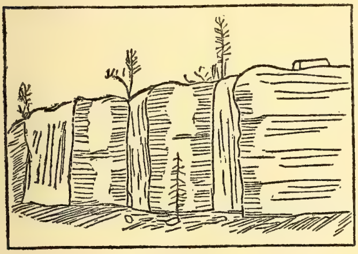


Fig. 4.

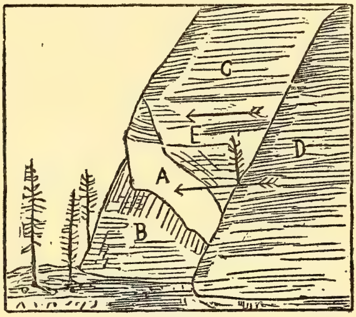


Fig. 6.

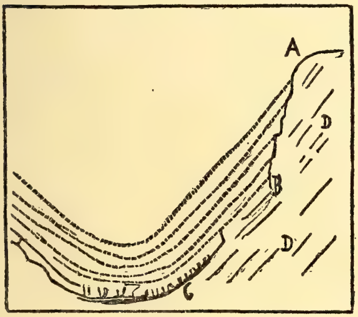


Fig. 5.

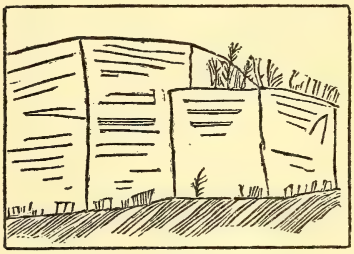


Fig. 7.

Fig. 5 is a profile view of a past-flowed glacier rock, about 1500 feet high, forming part of the north wall of Little Yosemite Valley near the head. Its grooved, polished, and fractured surface bears witness in unmistakable terms to the enormous pressure it has sustained from that portion of the great South Lyell Glacier which forced its way down through the valley, and to the quantity, and size, and kind of fragments which have been removed from it as a necessary result of this action. The dotted lines give an approximate reconstruction of the rock as far as to the outside layer at A. Between A and B the broken ends of concentric layers, of which the whole rock seems to be built, give some idea of the immense size of some of the chips. The reason for the greater steepness of the front from A to B than from B to C will be perceived at a glance; and, since the cleavage planes and other controlling elements in its structure are evidently the same throughout the greater portion of its mass as those which determined its present condition, if the glacial winter had continued longer its more characteristic features would probably have remained essentially the same until the rock was nearly destroyed.

The section given in Fig. 6 is also taken from the north side of the same valley. It is inclined at an angle of about twenty-two degrees, and therefore has been more flowed *over* than flowed *past*. The whole surface, excepting the vertical portion at A, which is forty feet high, is polished and striated. The arrows indicate the direction of the striae. At A a few incipient cleavage planes are beginning to appear, which show the sizes of some of the chips which the glacier would have broken or split off had it continued longer at work. The whole of the missing layer which covered the rock at B, was evidently detached and carried off in this way. The abrupt transition from the polished surface to the split angular front at A, shows in a most unequivocal manner that glaciers erode rocks in at least two very different modes—first, by grinding them into mud; second, by breaking and splitting them into blocks, whose sizes are measured by the divisional planes they possess and the intensity and direction of application of the force brought to bear upon them. That these methods prevail in the denudation of *over*flowed as well as *past*-flowed rocks, is shown by the condition of every cañon of the region. For if mud particles only were detached, then all the bottoms would be smooth grooves, interrupted only by flowing undulations; but, instead of this condition, we find that every cañon bottom abounds in steps sheer-fronted and angular, and some of them hundreds of feet in height, though ordinarily from one to ten or twelve feet. These step-fronts in most cases measure the size of the chips of erosion as to depth. Many of these interesting ice-chips may be seen in their tracks removed to great distances or only a few feet, when the melting of the glaciers at the close of the period put a stop to their farther progress, leaving them as lessons of the simplest kind.

Fig. 7, taken from the Hoffmann fork of Yosemite Creek basin, shows the character of some of these steps. This one is fifteen feet high at the highest place, and the surface, both at top and bottom, is ice-polished, indicating that no disturbing force has interfered with the phenomena since the termination of the glacial period.

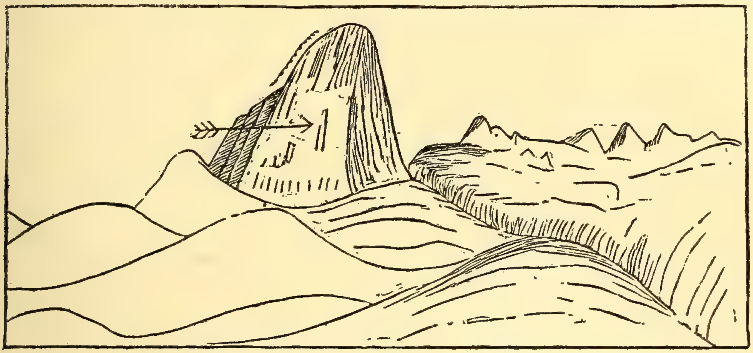


Fig. 8.

Fig. 8 is a dome on the upper San Joaquin, the top of which is about 7700 feet above sea-level. The arrow indicates the direction of application of the ice-force, which is seen to coincide with the position of remaining fragments of layers, the complements of which have been eroded away. Similar fragments occur on *the stricken side of all domes whose structure and position were favorable for their formation and preservation.*

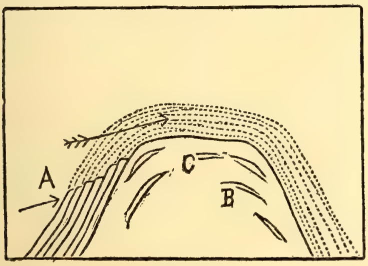


Fig. 9.

Fig. 9 is a fragmentary dome situated on the south side of the Mono trail, near the base of Mount Hoffmann. Remnants of concentric shells of granite from five to ten feet thick are seen on the up-stream side at A, where it received the thrust of the Hoffmann Glacier, when on its way to join the Tenaya, above Mirror Lake. The edges of unremoved layers are visible at B and C. This rock is an admirable illustration of the manner in which a broad deep glacier *clasps* and denudes a dome. When we narrowly inspect it, and trace the striae, we perceive that it has been eroded at once in front, back and sides, and none of the fragments thus removed are to be found around its base. Here I would direct special attention to the fact that it is on the upper side of this rock at A, *just where the pressure was greatest, that the erosion has been least,* because there the layers were pressed against one another, instead of away from one another, as on the sides and back, and could not, therefore, be so easily broken up.

QUANTITY OF GLACIAL DENUDATION

These simple observations we have been making plainly indicate that the Sierra, from summit to base, was covered by a sheet of crawling ice, as it is now covered by the atmosphere. Its crushing currents slid over the highest domes, as well as along the deepest cañons, wearing, breaking, and degrading every portion of the surface, however resisting. The question, therefore, arises, What is the quantity of this degradation? As far as its limit is concerned it is clear that, inasmuch as glaciers can not move without in some way and at some rate lowering the surfaces they are in contact with, a mountain range *may* be denuded until the declivity becomes so slight that the glaciers come to rest, or are melted, as was the case with those concerned in the degradation of the Sierra. However slow the rate of wear, given a sufficient length of time, and any thickness of rock, whether a foot or hundreds of thousands of feet, will be removed. No student pretends to give an arithmetical expression to the glacial epoch, though it is universally admitted that it extended through thousands or millions of years. Nevertheless, geologists are found who can neither give Nature time enough for her larger operations, or for the erosion of a mere cañon furrow, without resorting to sensational cataclysms for an explanation of the phenomena.

If the Sierra were built of one kind of rock, homogeneous in structure throughout its sections, then perhaps we would be unable to produce any plain evidence relative to the amount of denudation effected; but, fortunately for the geologist, this is not the case. The summits of the range in the section under special consideration are capped with slates; so are several peaks of outlying spurs, as those of the Merced and Hoffmann, and all the base is slate-covered. The circumstances connected with their occurrence in these localities and absence in others, furnish proof little short of demonstration that they once covered all the range, and, from their known thickness in the places where they occur, we may approximate to the quantity removed where they are less abundant or wanting. Moreover, we have seen in Study No. III that the physical structure of granite is such that we may know whether or not its forms are broken. The opposite sides of valley walls exhibiting similar fragmentary sections often demonstrate that the valleys were formed by the removal of an amount of rock equal in depth to that of the valleys.

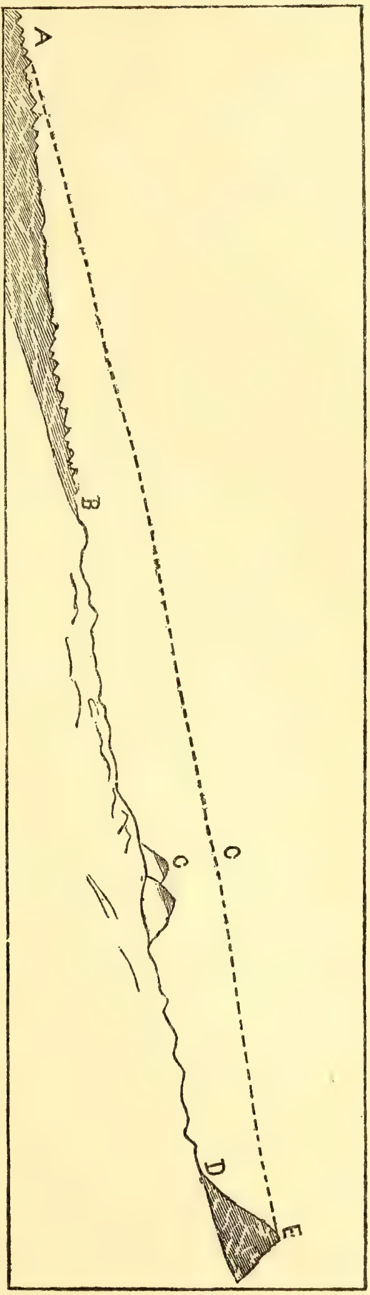


Fig. 10.

Fig. 10 is an ideal section across the range from base to summit. That slates covered the whole granitic region between B and D is shown by the fact that slates cap the summits of spurs in the denuded gap where they are sufficiently high, as at C. Also, where the granite comes in contact with the slates, and for a considerable depth beneath the line of contact, it partakes, in a greater or less degree, of the physical structure of slates, enabling us to determine the fact that in many places slates *have* covered the granite where none are now visible for miles, and also furnishing data by which to approximate the depth at which these surfaces lie beneath the original summit of the granite. Phenomena relating to this portion of the argument abound in the upper basins of the tributary streams of the Tuolumne and Merced; for their presentation, however, in detail, we have no space in these brief outlines.

If, therefore, we would restore this section of the range to its unglaciated condition, we would have, first, to fill up all the valleys and cañons. Secondly, all the granite domes and peaks would have to be buried until the surface reached the level of the line of contact with the slates. Thirdly, in the yet grander restoration of the missing portions of both granite and slates up the line between the summit slates and those of the base, as indicated in Fig. 10 by the dotted line, the maximum thickness of the restored rocks in the middle region would not be less than a mile and a half, and average a mile. But, because the summit peaks are only *sharp residual fragments,* and the foothills *rounded residual fragments,* when all the intervening region is restored up to the dotted line in the figure, we still have only partially reconstructed the range, for the summits may have towered many thousands of feet above their present heights. And when we consider that residual glaciers are still engaged in lowering the summits which are already worn to mere blades and pinnacles, it will not seem improbable that the whole quantity of glacial denudation in the middle region of the western flank of the Sierra considerably exceeds a mile in average depth. So great was the amount of chipping required to bring out the present architecture of the Sierra.

Reprinted from the *Overland Monthly* of August, 1874. This is the fourth of a series of seven studies in which Mr. Muir developed his theories of the geology of the Sierra.—EDITOR.

SIERRA CLUB

Founded 1892

402 Mills Building, San Francisco, California
Annual Dues: $3.00, (first year $5.00)

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.

◆

John Muir, President 1892 to 1914

OFFICERS AND COMMITTEES FOR THE YEAR 1917-1918

BOARD OF DIRECTORS

Wm. E. Colby, San Francisco .... *President*
Vernon L. Kellogg, Stanford University .... *Vice-President*
Marion Randall Parsons, Berkeley .... *Treasurer*
J. N. Le Conte, Berkeley .... *Secretary*
William Frederic Badè, Berkeley Albert H. Allen, Berkeley
Walter L. Huber, San Francisco Robert M. Price, Reno, Nevada
Clair S. Tappaan, Los Angeles

HONORARY VICE-PRESIDENTS

James Bryce, London, England
Henry S. Graves, Washington, D. C.
Robert Underwood Johnson, New York City
David Starr Jordan, Stanford University
J. Horace McFarland, Harrisburg, Pennsylvania
Enos A. Mills, Estes Park, Colorado
Stephen T. Mather, Washington, D. C.

COMMITTEES

Outing Committee: William E. Colby *(Chairman and Manager)*, Clair S. Tappaan *(Assistant Manager)*, Joseph N. Le Conte.

Committee on Local Walks: Fred R. Parker *(Chairman)*, William T. Goldsborough, A. E. Neuenburg, Leslie Gardner, H. T. Carlton.

Committee on Le Conte and Parsons Memorial Lodges: Joseph N. Le Conte *(Chairman)*, Marion Randall Parsons, Robert M. Price.

Auditing Committee: William F. Badè *(Chairman)*, Walter L. Huber, Albert H. Allen.

Librarian: Nell L. Taggard.

Southern California Section Executive Committee: Charles J. Fox *(Chairman)*, Phil S. Bernays *(Secretary*, 315 West Third Street, Los Angeles), Benjamin W. Fenton *(Treasurer)*, Mabelle McCalla *(Assistant Secretary)*, H. E. Bailey, Mrs. Henry Braun, William P. Boland, Ernest Dawson, George A. White.

◆

SIERRA CLUB BULLETIN

Published annually for the members

EDITORIAL BOARD

William F. Badè .... *Editor*
William E. Colby .... *Notes and Correspondence*
Marion Randall Parsons .... *Book Reviews*
Walter Mulford .... *Forestry Notes*
Albert H. Allen, Francis P. Farquhar
Walter L. Huber, William T. Goldsborough, Joseph N. Le Conte,
Elliott McAllister

WAR SERVICE RECORD

◆

United States Army

Albert H. Allen, Captain Infantry
C. R. Barney, 2nd Lieutenant Field Artillery
David P. Barrows, Major, Dept. Philippines
Edwin T. Blake, Captain Engineers, France
Holmes Beckwith, 1st Lieutenant Field Artillery
Fidel C. Chamberlain, Captain Engineers, Washington, D. C.
Alexander Craven, 2nd Lieutenant
Dozier Finley, Captain Ordnance Department
Paul C. Gripper, 2nd Lieutenant Infantry
D. H. Grubb, Lieutenant
C. A. Kofoid, Major Sanitary Corps
Charles H. Lee, 1st Lieutenant Engineers
Gilbert N. Lewis, Major, Gas Service Dept., Washington, D. C.
Ralph C. McGee, Captain Infantry
Robert Spander, Lieutenant
E. T. Thurston, Captain Engineers
Sydney Zobel, Lieutenant

PRIVATES

Robert Campbell, 116th Engineers, A. E. F., France
J. Le Roy Corrigan
Farnsworth Currier, 1st Sergeant, 348th Machine Gun Battalion
C. Nelson Hackett
H. L. Hansen, Section 586, A. E. F., France
Robert Lipman, Ordnance Dept., San Antonio Arsenal
Nathan Putnam, 18th Railway Engineers, A. E. F., France
Lawrence Rentchler
George Ross
K. A. Ryerson
E. L. Stocking, 18th Railway Engineers, A. E. F., France
J. C. Tormey
George W. White, 14th Field Artillery
Tyler R. Van Degrift, 1st Sergeant 7th Battery

AVIATION

Edmund Chamberlain, 1st Lieutenant, 1st Aero Squadron,
U. S. Marine Corps, Mineola, L. I.
William T. Goldsborough, 1st Lieutenant, 138th Aero Squadron
Bright R. Paxton
Warren L. Pierson, 1st Lieutenant, France
Avery Tompkins, 2nd Lieutenant, Washington, D. C.

MEDICAL OFFICERS RESERVE CORPS

E. J. Best
J. G. Brown
Malcolm Goddard
C. L. Hoag
Frederic Kroll
A. M. Meads
O. H. Robertson
Stanley Stillman

AMERICAN FIELD SERVICE

Henry L. Perry, Lieutenant

RESERVE OFFICERS' TRAINING CAMP

Lesley Einstein
H. V. S. Hubbard

United States Navy

L. E. Bruce, Ordnance Officer

UNITED STATES NAVAL RESERVE FORCE

Francis P. Farquhar, Passed Assistant Paymaster (Lieutenant), Cost Inspection, Union Iron Works, San Francisco
S. M. Haslett, Jr., Ensign, U. S. Naval Academy, Annapolis
Homer T. Miller, Assistant Paymaster (Ensign), Twelfth Naval District, San Francisco

The lists given above are doubtless incomplete and members are urged to send in corrections and additions. Mention should also be made of many of our members who are giving volunteer service in important fields of civilian war work. Our vice-president, Vernon Kellogg, formerly associated with Mr. Hoover on the Commission for Relief in Belgium, is now his assistant in the Food Administration. With him also are Duncan McDuffie and J. S. Drum. Warren Gregory is another member of the C. R. B. who has done notable work. Warren Olney, Jr., is a member of the State Bureau of Military Registration, and Walter J. Burpee, a member of the Local Exemption Board. W. J. Aschenbrenner is an associate member of the Legal Advisory Board. Homer P. Earle is in Government service in Washington.

From the University of California the following members of the faculty have been engaged in investigation for the Pacific Coast Research Conference: W. C. Bray, J. S. Burd, Herman Kower, A. C. Lawson, W. A. Setchell, Max Thelan. For the State Council of Defense: H. R. Hatfield, W. L. Jepson, C. A. Kofoid, E. P. Lewis, G. L. Louderback, Walter Mulford.

The Reverend A. W. Palmer is a Director General of religious work in the Y. M. C. A. Charles J. O'Connor is at the head of Civilian Relief of the Red Cross for the whole Pacific Coast. Other devoted workers in the Red Cross are Ellen Emerson, John Gardner, D. L. Beard, Mary Haskell, Jane M. Spalding, Agnes Vaille and Jessie Tatlock. Miss Willie Morrow and Grace Beans are on their way to France as nurses. Mrs. Eunice Tietjens and Elizabeth Hammond are both in France, the former correspondent for the *Chicago Daily News*, the latter as interpreter and entertainer in a Red Cross Unit. Edith Bull is likewise in France on war service. Professor Charles A. Huston of Stanford University and Professor Edward C. Franklin are both on the War Trade Board, Mr. Huston on the Control of Exports, and Mr. Franklin on the Control of Mines.

A few names likewise come to mind of friends from former outings not now members of the club, news of whom may be of interest to many. Bernard Miller is a Captain in the Army; Dr. Henry Forbes is in France with one of the American base hospitals, "loaned to the British"; he has served in Serbia also. Aristides Phoutrides is First Lieutenant of Infantry, U. S. A. Alice Leavens is a member of the Smith College group engaged in rebuilding ruined villages in France. Dr. Sterling Bunnell is also in France.

EDITORIALS

SHALL SHEEP DESPOIL NATIONAL PARKS?*

Powerful influence will be brought to bear this winter in an effort to have the national parks thrown open to sheep grazing. War pressure and the necessity for additional mutton and wool will be urged as the excuse for this additional entering wedge. But if these natural wonderlands are ever again invaded by the "hoofed locusts," the fable of the camel and the Arab's tent will be repeated. Once allowed to enter, these destructive agencies will hold on like grim death, even when the asserted need is over. It took the courage and foresight of a John Muir and years of effort to "drive these money changers out of the temple," and no man was ever better qualified to judge the damage these wandering hordes did to the wild gardens of the Sierra and other mountain parklands. He accompanied a band of sheep on his first trip into the Sierra, and in all his wanderings was impressed with the desert-like destruction they left in their wake. To use his own words:

> In the summer of 1889, I took one of the editors of the *Century Magazine* out for a walk in Yosemite . . . and when we were camped one day at the Big Tuolumne Meadows, my friend said, "Where are all these wonderful gardens you wrote so much about?" And I had to confess—woe's me—that uncountable sheep had eaten and trampled them out of existence.
>
> The axe is not yet at the root of every tree, but the sheep is, or was before the national parks were established . . . the sheep consume every green leaf, not sparing even the young conifers, when they are in a starving condition from crowding, and they rake and dibble the loose soil of the mountain sides for the spring floods to wash away, and thus at last leave the ground barren.
>
> And to think that the sheep should be allowed in these lily meadows! after how many centuries of Nature's care planting and watering them, tucking the bulbs in snugly below the winter frost, shading the tender shoots with clouds drawn above them like curtains, pouring refreshing rain, making them perfect in beauty, and keeping them safe by a thousand miracles. . . .

A few years later he wrote:

> On this ramble I was careful to note the results of the protection the region had enjoyed as a park under the care of the Federal Government. . . . When I had last seen the Yosemite National Park region, the face of the landscape in general was broken and wasted, like a beautiful human countenance destroyed by some dreadful disease. Now it is blooming again as one general garden, in which beauty for ashes has been granted in fine wild measure. . . .

---

* The National Park Service has opened the parks to a limited number of cattle. While the necessity for even this is to be regretted, no permanent harm can result if the numbers are restricted, for cattle are not nearly so destructive to vegetation as sheep.

This is no time to take advantage of a nation's stress and urge the granting of an unnecessary destructive privilege which will injure her at home as well as abroad. After the war is over the need of national parks will be greater than ever to help heal the wounds and allay the suffering of the war. Our parks should then be at their best and should not needlessly show the blasting effects of modern warfare. Every loyal American should be willing to sacrifice anything and everything vitally essential to victory, but we should not blindly sacrifice priceless possessions to our everlasting regret until the need for such sacrifice becomes compelling. The national parks are only a small fractional area of the public domain.

The French, who have superbly suffered the heaviest burdens in this war, are keeping the gardens of Paris blooming in all their peace-time glory in order to cheer the wounded and downhearted and make them forget for the moment their misery. Why does not France spend this labor in making shells or raising wool? Why not auction off the priceless art treasures of the Louvre if money and material gain is the only consideration in this war? No, the world is not coming to an end and there is a brighter day to look forward to, be it near or be it remote. And when that day arrives, let us not still be confronted with the terrible ravages of war by the sight of needless destruction of our wild playgrounds at home. W. E. C.

∴

To Our Club Members There is a natural tendency in these days to relinquish the privileges of club membership for financial reasons. The cost of living has risen and taxes of all kinds are greatly increased. Consequently the loyalty of all who belong to public-spirited organizations is undergoing a test. Many bear testimony that the Sierra Club makes a better return for value received than any other club of the kind. But we ardently hope to build up a membership that will not rate the question of individual benefit above the honor of sharing in the valuable public service which the Sierra Club is constantly rendering. Had it not been for the watchful protection which the club has exercised over the national parks and monuments of California, in particular, both present and future generations would long ago have been robbed of treasures of scenery that are now, and, we hope, will ever remain the pride and the inspiration of the West. In order to invade the national parks, wool and mutton men are sure to dress up their hope of private gain in the form of a public necessity. We need the support of all our members in any impending fight for the protection of our country's heritage of natural beauty. Let there be no slackers in our ranks! Maintain your membership! W. F. B.

TWO ARCTIC EXPEDITIONS A time when nearly the whole world is at war offers little encouragement to the enterprise of explorers. Two notable Arctic expeditions, however, were undertaken before the outbreak of the war. The safe return of members of both exploring parties last summer is a fact of great interest to students of the earth's surface. The Crocker Land Expedition carried a survey along the southeastern coast of Ellesmere Island, northwest of Greenland. That these explorers found a great increase of glacial activity throughout the northern regions, since the middle of the nineteenth century, is a fact of considerable climatic importance. In one place an enormous new glacier has formed as a result of the progressive refrigeration of the country. The land is said to be fairly buried in ice, which flows over and around the headlands and fills all the fiords. In view of the fact that the seasonal cold broke all records for one hundred and nine years in New England last spring, and the further fact that this increase of cold has been noted in the temperate zone of the entire northern hemisphere, one is tempted to raise the question whether another northern ice period is approaching.

At Cape Isabella Mr. Macmillan, the leader of the expedition, was fortunate enough to find the records left by Sir George Nares of the British expedition of 1876, and mail for the *Discovery* and the *Alert* left a generation ago by Sir Allen Young of the *Pandora.* The latter vessel, renamed the *Jeannette,* was commanded by George W. De Long when he set out in 1879 from San Francisco on his fateful expedition.

The southern party of the Canadian Arctic Expedition made its way northward around Alaska to the point where the Canadian-Alaskan boundary line touches the Arctic Ocean. From there they explored the coast eastward for a thousand miles, consuming three years in the achievement of this task. Their discoveries are of great interest and importance. Among them is the cañon of the Croker River, deeply eroded from dolomite. The collections, both of plants and of animals, include specimens of groups never before encountered in the western Arctic area. The ethnologists found brand new material for study in the Copper Eskimos, whose language, folklore, and social customs were investigated by one of the anthropologists who lived and wandered about with them for half a year on the little known Victoria Island. These Eskimos make their tools of native copper, which was found there in nuggets weighing in some cases forty pounds. The geologist of the party estimated that two billion tons of the ore were in actual sight.

Reports of the discoveries made by the northern party under the direction of the noted explorer Vilhjalmur Stefansson are now being awaited eagerly. He had not been heard from for a year and a half, but the Navy Department has, just as we are going to press, received word of the safe arrival of his party at Fort Yukon. Stefansson undertook to explore the Beaufort Sea region west of the Parry Archipelago and north of Alaska and Yukon Territory.

The interests common to Alpinists and explorers of the Arctic regions receive new recognition in the fact that Mr. Macmillan has been invited to give an account of his explorations at the annual dinner of the American Alpine Club. W. F. B.

⁂

Mountaineers and War

More than fifty of our members are now in the army or navy or in hospital service. Nearly as many again have sacrificed their business interests to devote themselves to civilian work directly related to the war. Still others, uncounted numbers of them, whose names will never appear on war-service records, are doubling already heavy burdens of work and responsibility in order that home enterprises of far-reaching importance may still be carried on.

In their mountain life mountaineers gain a democratic simplicity, a vigorous hardihood, that should stand them in good stead now. They learn there to respect discipline, to sacrifice individual desires to the good of the communal whole, to live cheerfully with little besides the three B's of mountaineering—bed, boots and bread. Indispensable knowledge this for a soldier. It is not surprising, therefore, to hear that high honor already has been paid one of our new officers. A group of drafted men training under him, given the opportunity to enter a reserve officer's training camp, declared that if they could be assured of going to France and fighting with him, they would prefer to remain in the ranks. This officer had learned, like the French officers, that leadership and comradeship may go hand in hand. We believe that when the war is over we shall be able to point with pride to more than one of our trail comrades, who in his hours of recreation amid the peace and beauty of our mountains has gained the strength, the self denial and the resourcefulness that will make him a gallant and trusted leader in the grim business of war. M. R. P.

REPORTS OF COMMITTEES

Report of the Treasurer for the Year Ended May 5, 1917, Carried Forward to December 31, 1917

At a meeting of the Board of Directors of the Sierra Club held May 5, 1917, it was voted that the fiscal year of the club be changed to the calendar year. Among other reasons for this change was the fact that under the old system the report of the treasurer, rendered in May, could not be published until the following January. The report ended May 5, therefore, has been carried forward to December 31, and henceforward will be rendered each year upon the latter date and published in the January Bulletin.

At an earlier meeting it was voted by the directors that the fund derived from the bequest of the late Edward Whymper ($254.12) should be expended in reducing the debt on the Parsons Memorial Lodge situated on the Tuolumne Soda Springs property, this being a permanent improvement equally valuable to all members of the club.

SUMMARY OF RECEIPTS AND EXPENDITURES YEAR ENDED MAY 5, 1917

Total receipts	$5,724.66
Total expenditures	5,566.35
Excess of receipts over expenditures	158.31
Cash on hand May 6, 1916	2,036.55
Balance May 5, 1917	$2,194.86

RECEIPTS AND EXPENDITURES FOR NINETEEN MONTHS ENDED DECEMBER 31, 1917

MAY 6, 1916, TO DECEMBER 31, 1917

Receipts

Dues from members	$7,230.00	
Rent	210.00	
Advertisements	475.00	
Sale of Bulletins	26.45	
Sale of pins	11.00	
Interest on bank accounts	120.44	
Sundry small receipts	4.03	
Total receipts		$8,026.92

Expenditures

Rent of room 402 Mills Building	$1,200.00	
Salary of assistant	1,200.00	
Circulars and printing	710.48	
Postage	527.65	
Telephone and telegraph	179.38	
Office maintenance	98.79	
Library and photographs	114.66	
Publishing and delivering BULLETIN	1,925.21	
Delivering *Appalachia*	168.22	
Le Conte Lodge	222.88	
Parsons Lodge	216.82	
John Muir Trail	20.00	
Southern Cal. Section	450.00	
Furniture and Equipment	31.90	
Dues to other clubs	36.24	
Taxes and insurance	183.25	
Clerical assistance	22.75	
Debit and exchange	21.25	
Pins	32.70	
Reunions, etc.	32.10	
Sundry small expenses	10.62	
Total expenditures		$7,404.90
Excess of receipts over expenditures		622.02
Cash on hand May 6, 1916		2,036.55
Cash on hand December 31, 1917		$2,658.57
Made up as follows:		
In office	$ 25.00	
First National Bank	213.11	
Savings Union Bank & Trust Co	1,671.41	
Security Savings Bank	749.05	
Total		$2,658.57

Permanent Fund

Balance—May 6, 1916	$1,574.92	
New life members	400.00	
Interest	132.50	
Balance—December 31, 1917, in Security Savings Bank		$2,107.42

MARION RANDALL PARSONS,
Treasurer

REPORT ON LE CONTE MEMORIAL LODGE

The lodge was opened to the public on May 23rd. During the first part of the season the cold and damp weather necessitated a large fire being kept constantly burning for the comfort of the guests. For this purpose a quantity of wood was donated to the lodge by the Government officials. During the early part of the season we had an average of fifteen visitors a day, but as the summer advanced the number increased until, during the latter part of June, we often had several hundred. In July the number decreased again quite materially.

The guests seemed to enjoy the books on the valley, including those on the birds and flowers, and the daily papers, more than any of the other attractions. They were also much interested in the maps and studied them diligently. On the hot days of July, they discovered that a cool, comfortable spot could always be found in the lodge, and soon took advantage of this, spending the whole afternoon within it, which made the one comfortable rocking chair constantly in demand.

We renewed many of the older specimens of the herbarium, brightening up the collection. There are many more specimens which we collected for this purpose but left unmounted on account of lack of room. A catalogue of the books was made this summer for the library, there being about 350. Two cards were made for each, so that any book may easily be found by knowing either the author or title.

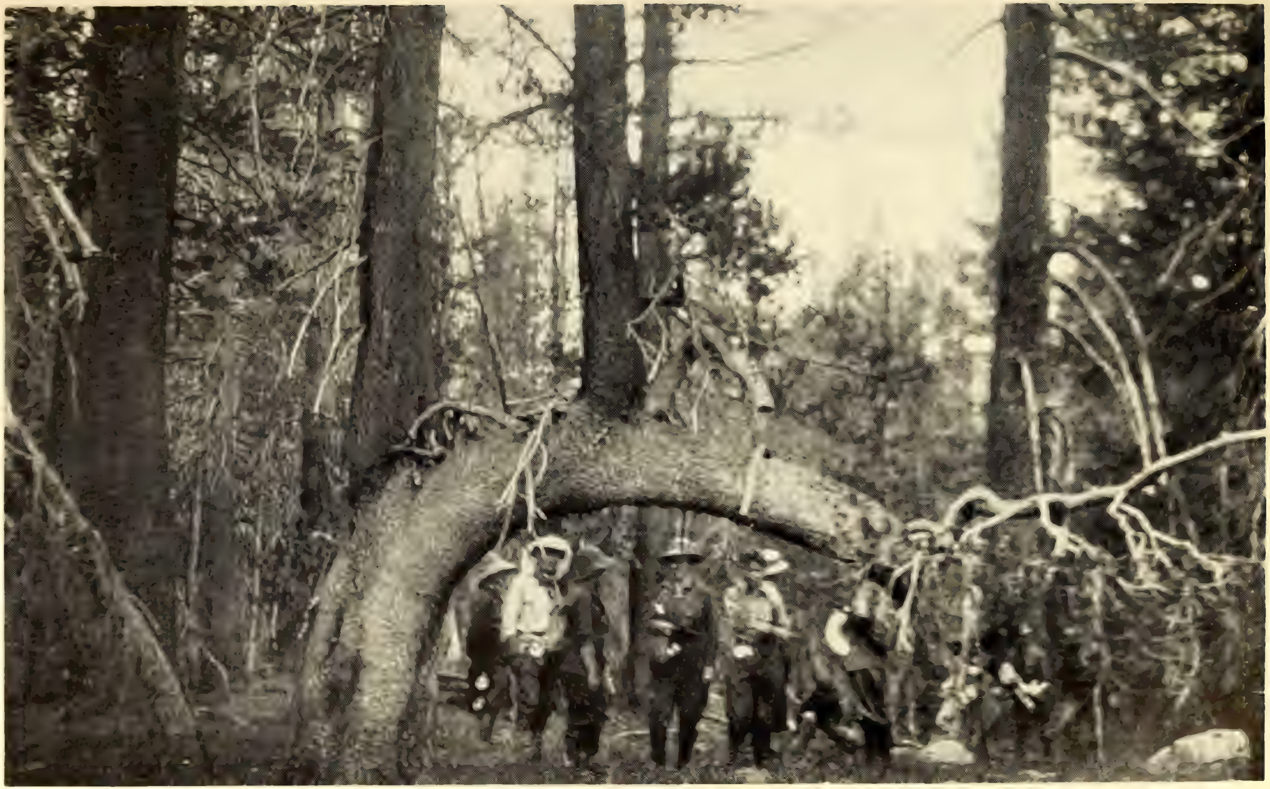
We desire to express our sincere appreciation to the Sierra Club for the privilege of spending a summer in the valley as custodians of the lodge.

DOCIA I. PATCHETT,
ROSE B. WRIGHT,
Custodians
J. N. LE CONTE, *Chairman,*
R. M. PRICE,
MARION RANDALL PARSONS,
Committee

⁂

REPORT OF 1917 OUTING

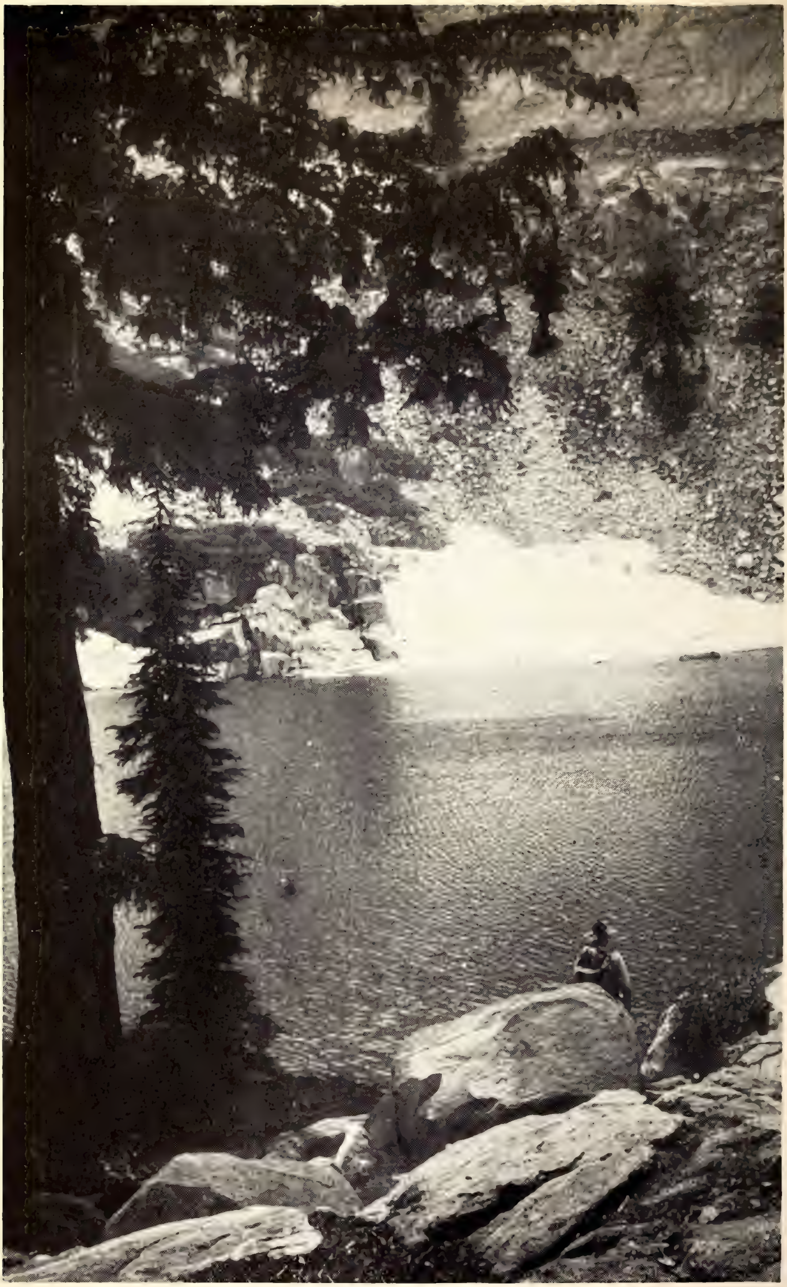
Owing to conditions brought about by the war, the ambitious plans of the Outing Committee to take the club into the San Joaquin and Middle Fork of the Kings regions had to be abandoned until after the war. A substitute outing was taken into the Tuolumne Meadows, where a main camp was established on the Soda Springs property which is under the control of the club, and from this central camp trips were taken to the many surrounding points of interest. About 150 members participated and the outing proved thoroughly enjoyable from every standpoint. This was the first opportunity that members of the club have had generally to enjoy the Parsons Memorial Lodge. Every one had great praise for



UNIQUE TAMARACK PINE GROWTH

Located on slope below Elizabeth Lake, Tuolumne Meadows. Note the three upright trunks growing from the curved portion

Photo by William E. Colby



ONE OF THE EXQUISITE LAKES IN TEN LAKE BASIN
Yosemite National Park
Photo by William E. Colby

its architectural beauty and its appropriateness to the surroundings. Several of the camp-fires were held in the lodge itself. The fire was built in the large fireplace and the building easily accommodated 150 at one time. Large parties climbed Mt. Lyell and Mt. Dana, and smaller expeditions went as far as Rodgers Lake and Dunderberg Peak. A small knapsack party visited the Ten Lake Basin region with a view of gaining information for the outing of 1918. The party returned to Yosemite by way of Merced Lake and Little Yosemite, many members availing themselves of the opportunity to climb Half Dome with the aid of the rope that has been placed along the dangerous portion of the ascent.

Because of the continuance of the war and the desire on the part of many to be within easy reach of telephone and rail communication, the outing for the coming summer will be taken to the same headquarters in the Tuolumne Meadows, through Yosemite, and for the last three weeks of July as was the case last year. The total expense of the outing from San Francisco for the three weeks will be in the neighborhood of $70.00 or $75.00 for those going from San Francisco, and approximately $80.00 for those leaving Los Angeles. This is as close a calculation as is possible at the present time, and detailed information will be sent out during the spring as usual.

In order to make the trip as interesting as possible to those who have visited the Meadows on previous occasions, it is planned to take a side trip down to Mt. Ritter and vicinity during the first two weeks of the outing, and the entire party will be taken into Ten Lake Basin during the last week. The region about Mt. Ritter is one of the most striking and spectacular from the standpoint of mountaineering in the Sierra, while Ten Lake Basin contains one of the most exquisite groups of lakes that are to be found in the whole range. In all probability a knapsack party will go down the Tuolumne Cañon to Pate Valley and rejoin the main party in Ten Lake Basin. On account of the strenuous conditions created by the war, the committee had some thought of discontinuing the outings for the coming summer at least, but so many requests have been made that an outing be undertaken in order to afford those who have been hard at work during the year an opportunity for complete rest and recreation, that the trip as outlined above will be undertaken, but because of these conditions the committee requests that all possible assistance be rendered by giving immediate notice in writing to the club of the intention of those who desire to participate. This application will not be considered binding, but it is quite necessary in order to give the committee an opportunity to prepare for the requisite number.

Very respectfully,

WM. E. COLBY, *Chairman,*
J. N. LE CONTE,
CLAIR S. TAPPAAN.

SECRETARY'S ANNUAL REPORT

MAY 6, 1916, TO MAY 5, 1917

To the Members of the Sierra Club:

The club can be justly proud of the work accomplished the last year. Many of its members have entered the service of the Government in one capacity or another as will be indicated in part, at least, by the roll of honor published in another portion of the BULLETIN. The club is so large that we have not been able to ascertain all of the names that should be placed on this list, and will appreciate assistance in making it complete. It is a source of pride and satisfaction to learn from many of the active members who became officers in the various training camps established by the Government that a considerable portion of their success in these training camps was attributed directly to the experience in outdoor life and ability to handle personal equipment derived while on Sierra Club trips.

The club also did a splendid work in securing passage of another bill in the last State Legislature appropriating an additional $10,000 to be used toward the completion of the John Muir Trail. Great credit is due Senator A. H. Breed for his tremendously effective assistance in this behalf. At the suggestion of the club the Legislature also amended the Golden Trout Law so that it is now possible to catch these trout commencing the 1st of July instead of the 1st of August, as was formerly the case. This condition virtually debarred any opportunity for the club members to catch golden trout on any of their outings, and was not supported by any valid reason.

The club also entered a vigorous protest against allowing cattle to enter the national parks unless a compelling necessity were shown. Some good citizens became quite hysterical on the subject, and without adequate information were demanding that the parks be thrown open indiscriminately to grazing. Instead of a shortage of feed as predicted, there never was a better grazing year known in the Sierra than that of last summer, and the urgent demand on this score was traced directly to cattle interests that have been trying to get permits to enter the park ever since parks were established. Under pressure, the Department of the Interior did allow a limited number of cattle to enter the Yosemite National Park north of the Tuolumne River and in the region about the headwaters of the South Fork of the Merced. Even this is to be regretted, for when these interests once get a hold on the park it will be difficult to dislodge them. The Sierra Club, under the guidance of John Muir, fought for years to get the sheep and cattle out of the Yosemite Park, and while the Sierra Club would not for a moment stand in the way of a real and compelling necessity, it would be derelict in its duty if it did not do all in its power to keep the parks from being ruined as the result of a specious demand.

We are indebted to Dr. E. P. Meinecke, of the U. S. Forest Service, for the gift of a large number of Alpine journals and publications, forming quite complete sets, many of which were bound.

The 1st of May the total membership of the club was 1951, of which number 239 were new members, making a net increase of 155 members, but there were at that time 275 delinquent members who had been dropped for non-payment of dues, and who were given another opportunity to be placed in good standing. A good many members have resigned from the club since that date because of war conditions, or been dropped for non-payment of dues, and it therefore behooves the loyal members to work actively in increasing the membership so that it may not show a considerable loss at the end of another year. While the Board of Directors has not met so as to act directly upon the matter, it is unquestionably the concensus of opinion that dues of those members who are in active service of the Government will be remitted during the period of the war.

Respectfully,

WM. E. COLBY, *Secretary*

NOTES AND CORRESPONDENCE

Edited by WILLIAM E. COLBY

❧

SOUTHERN SECTION NOTES

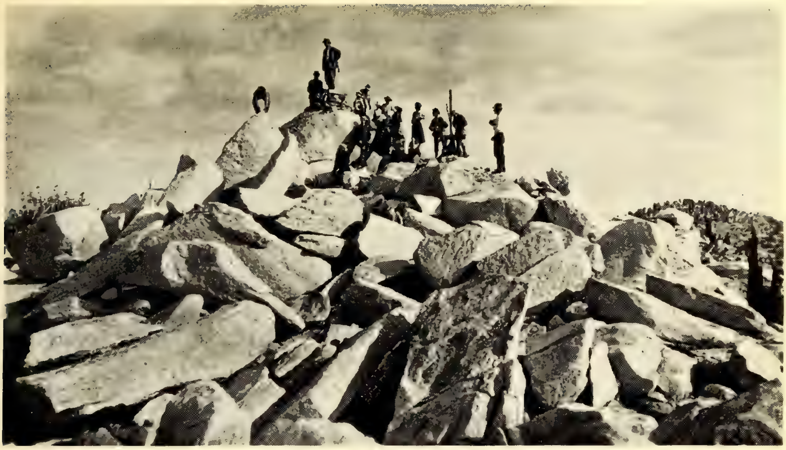
FROM PINE TREES TO PALM GROVES

[An account of a four-day trip of the Sierra Club, Southern Section, through the San Jacinto Mountains to the Colorado Desert.]

There is no finer alpine region in Southern California than the San Jacinto Mountains with their extensive meadows. Rising abruptly from the western border of the Colorado Desert, at places below sea level, Mount San Jacinto reaches an altitude of 10,805 feet. The new and attractive Government "Recreation Map" of the Cleveland National Forest mentions this peak as among the most rugged of our State. Last spring, from the heights of Catalina Island, members of the Sierra Club viewed this snow-crowned peak with his brothers, San Gorgonio and San Bernardino, nearly one hundred and fifty miles away, and they were eager for the ascent.

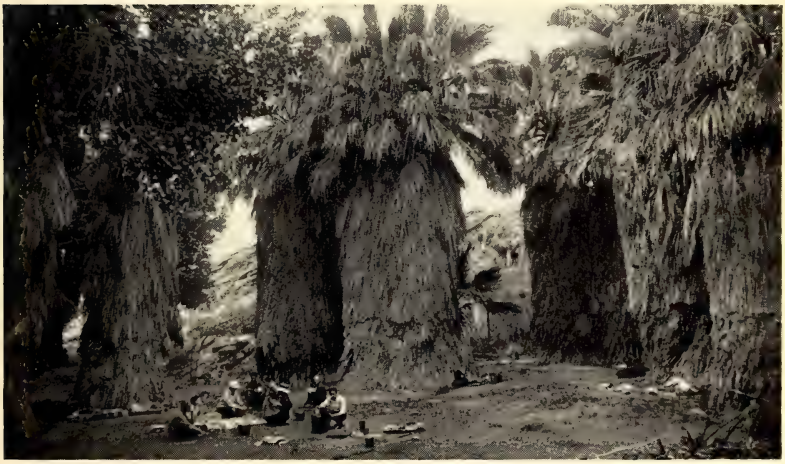
A delighted party of forty left Los Angeles the latter part of August, 1917, on a "Sierra Club Special Electric" for San Bernardino, sixty miles distant. Here they transferred to two powerful auto stages which carried them via Hemet to about a mile above the mountain resort at Idyllwild. In Strawberry Valley, amidst a friendly group of pines and incense cedars, the first night's camp was made. The party soon dispersed into prearranged commissary groups of five to seven persons each and the evening meal was prepared. At the camp-fire the interest centered about the legends of Tahquitz. This wicked Indian chief so enraged his people that they put him to death by fire, but his evil spirit escaped, and even until today it is said the Saboba Indians approach these mountains only with fear and trembling because of the mysterious rumblings around Tahquitz Peak. These rumblings were experienced by our party, but the thunder clouds overhanging the desert were held in suspicion.

Next morning breakfast was prepared at daybreak, lunches put in knapsacks, and dunnage bags left for the packers. By noon the party had ascended to Tahquitz Peak, 8826 feet in elevation. This granite mountain of vertical cleavage and rugged piles of weather-worn boulders affords a view of Hemet Lake, with the extensive areas of prosperous citrus and deciduous groves below. The trail now descends to Tahquitz Valley, with its fine forest of yellow, Jeffrey and sugar pines, also incense cedar and white fir. Wild fuschias *(Zauschneria Californica),* scarlet penstemon, purple aster and goldenrod lent color to the scene, while on the drier desert slope below were fields of that fascinating member of the mint family, Desert Ramona, growing in clumps of

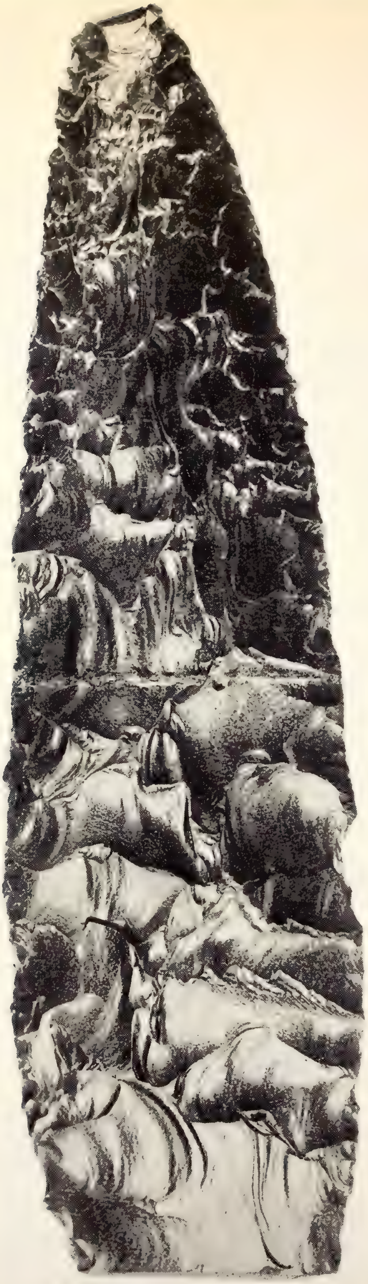


SUMMIT OF MOUNT SAN JACINTO (10,805 FEET)
Photo by C. J. Fox

PLATE CCIX.



GROVE OF PALMS AT MOUTH OF ANDREAS CAÑON, AN OLD INDIAN CAMP GROUND
Photo by C. J. Fox



SPEARHEAD
Found by John P. Dexter, July 27, 1914, in Hetch Hetchy, near Rancheria Creek.
Presented by him to the Sierra Club. The original spearhead
is an inch longer than the reproduction

soft gray foliage, in charming contrast to the royal purple flowers in large but delicately interrupted whorles.

The trail now leads past Hidden Lake, a small well-concealed basin of water without outlet, on to Tamrac Valley, with its numerous tall and stately tamrac pines, a beautiful camping place. Due largely, however, to a great dearth of signposts during the day's walk of fifteen miles through this national forest, with its many diverging paths, it was after dark before all the party were all accounted for in camp. No pack train had arrived and the scouting party formed by our good leader, Ernest Dawson, failed to reveal any trace of it. It were better we had heeded those rumblings of Tahquitz! However, some venison obtained from some hunters this first day of the deer season was roasted, some dried figs were discovered in someone's knapsack, and a box of after-dinner mints completed the delusion. A cache a mile distant, belonging to packers, was commandeered and each of us rolled up in a single blanket around the campfire.

But the night was not long as the more hardy were up by three o'clock for the climb of Mount San Jacinto, only two miles distant. The full moon made the cold white rocks stand out almost phosphorescent as we climbed through the bent and broken Murray and limber pines to well above the timber line. The sun rose a brilliant ruby red out of the mists of the Colorado Desert. Down in the west the great mountain peak cast its shadow over the little farms nestled against the foothills, and beyond, though not visible, were the orange groves of Riverside. Over 8000 feet almost directly below was the San Gorgonio Pass, joining these two landscapes of such striking contrast. Southeast were the Santa Rosa Mountains, and to the south Palomar, Cuyamaca, and the Laguna mountains.

Soon after return to camp one most welcome pack animal arrived with provisions and the party was soon off in fine spirits for the day's hike of six miles. The sheer view we had at midday from the ridge at Hidden Lake down over the Coachella Valley and on toward Salton Sea was impressive. A short dark line moving slowly across the floor of the desert, dotted with creosote bushes, proved by our glasses to be a Southern Pacific train. Early next morning dunnage was left for the packers to return to Los Angeles by parcel post, and the party began the ten-mile descent to "the land of the palm." Ours was the first large party to use this trail, lately completed by M. S. Gordon at his own expense. We soon descended from the pines through manzanita and mountain mahogany into the elfin forest of "ribbon woods," with their shreds of reddish bark hanging about the branches. This is the chamise of the higher zone *(Adenostoma sparsifolium)*, and for a mile we journeyed amongst its sweetly fragrant white blossoms.

But as the trail descended the thermometer certainly ascended. However, a half-hour's shower proved most refreshing, and we were ready for lunch in the grove of magnificent native fan palms *(Washingtonia)* at the mouth of Andreas Cañon. This grove a hundred years ago, according tó Pablo, an Indian, was the annual meeting place of the Agua Caliente Indians, a few of whom may be seen today around the hot springs below. Mortars and hieroglyphics can still be seen in the nearby caves. Last year the club had camped here and explored five nearby cañons, tropical with thousands of these palms. Farther from the stream there is only cactus, greasewood and mesquite. The "barrel cactus" grows nearly head high, and by cutting out the top with a hand ax and crushing the pulp with the handle, a cup of watery juice can soon be extracted which easily allays thirst on the desert.

But again is heard the honk of the mountain buses, and we gather the stragglers of the group to wave adieu to the most varied scenes of this four-day trip, and after a stop at Palm Springs to test the mud baths and see the Desert Inn, the enjoyment and the hardship of the outing mingle in pleasant memory.

∴

CLUB GATHERING

Wishing to bring more of the spirit of informality into the annual indoor reunion of the Southern Section of the Sierra Club, an informal supper was given in the municipal club house at Echo Park, Los Angeles, on November 24th. Arrangements were made with a cafeteria for the hot food and the Sierra Club members did all the rest. At six-thirty there was a real Sierra Club line-up for supper, and nearly two hundred hungry hikers took their plates and cups to the long tables which had been set in the main hall.

After supper the tables were removed and, naturally, a very informal social time ensued while changing the room into an assembly hall. A very good program followed, Mr. Tappaan officiating. This included an informal talk on the High Sierra by Chester Versteeg, illustrated by beautiful natural-color views, mostly by Mr. Ink. Then a little informal dance and it was time to leave, every one feeling that this was the most successful indoor gathering ever held by the Southern Section, and at just half the expense of the more formal affairs, thus keeping in line with the universal purpose of conservation and the avoidance of useless expenditure.

∴

MUIR LODGE

The Muir Lodge reunions in the spring for John Muir's birthday celebration, and in October for the dedication anniversary, are events long anticipated and largely attended. But Muir Lodge means more than that. Almost daily, along the high, winding trail come members of our big mountain family to rest in their own mountain home. It is a well-observed code of honor to leave Muir Lodge a little cleaner and the firewood a little more abundant than one found it. The additional dressing- and locker-rooms and women's out-door sleeping quarters have temporarily solved a difficulty for which the steadily increasing patronage demanded a solution. By its thousands of visitors Muir Lodge has abundantly justified its existence.

⁂

LOCAL WALKS OF SOUTHERN CALIFORNIA SECTION OF SIERRA CLUB

Although some faces are missing from our local walks since the war, nearly every week sees an enthusiastic band of climbers starting out for a one-, two- or three-day outing. Once in a while, by the help of a fortunate holiday date, we even manage a four-day trip. In the summer of 1917, those who could not stretch their vacations to cover a High Sierra trip enjoyed a week's outing among the mountains of the San Gabriel Divide. Our itinerary ranges from San Jacinto and San Gorgonio in the southeast to Pinos far in the northeast, and from Gleason and Pacifico overlooking the desert on the north to the hills along the coast.

On the recent trip to Liebre Mountain the club was royally entertained by Mr. Collins at Oak Ridge Ranch. Milk, fruit and melons were furnished ad libitum, and he even built a Dutch oven for their special use. His "good-by" was accompanied by a cordial urging to come again.

Some particularly attractive trips are now being planned by the Local Walks Committee.

⁂

MUNICIPAL MOUNTAIN CAMP

Realizing the benefits of a mountain vacation, Los Angeles City Playground Commission has established a summer camp in Seeley Flats in the San Bernardino Mountains. The camp has grown until now there is permanent equipment for two hundred and seventy-five campers, and four hundred have been accommodated at once. As each one renders some slight assistance every day, the small amount of $7.50 gives a happy, healthful vacation of two weeks, transportation included, and everyone feels part of the big family.

The camp is reached by automobile stage, and the road winds through beautiful country and climbs to an elevation of about forty-five hundred feet. The cabins are arranged in a semi-circle, with the lodge, dining quarters and ball courts completing the circle. Across the creek and a little to one side is the plunge.

The commission is now building a second municipal camp on a site of eighty acres, near Seven Oaks. This gives practically everyone a chance to "Go to the mountains and get their good tidings."

TRAIL BUILDING

At a late meeting of the Southern Section committee, it was decided to use all money collected from the five-cent fees on the local trips for trail building and sign posting exclusively. The Southern Section has lately expended one hundred dollars with a like sum from the Government in building a trail near Mount Islip. They are also expending fifty dollars with an equal sum from the Government in the much needed sign-posting of the San Jacinto Mountains. They are also doing some trail work at Iron Mountain.

∴

INVASION OF OUR NATIONAL PARKS

Sheep owners want to graze sheep in national parks. This would despoil the parks without greatly increasing the supply of wool and mutton

What are our national parks for—to be enjoyed by people or to be despoiled by cattle and sheep?

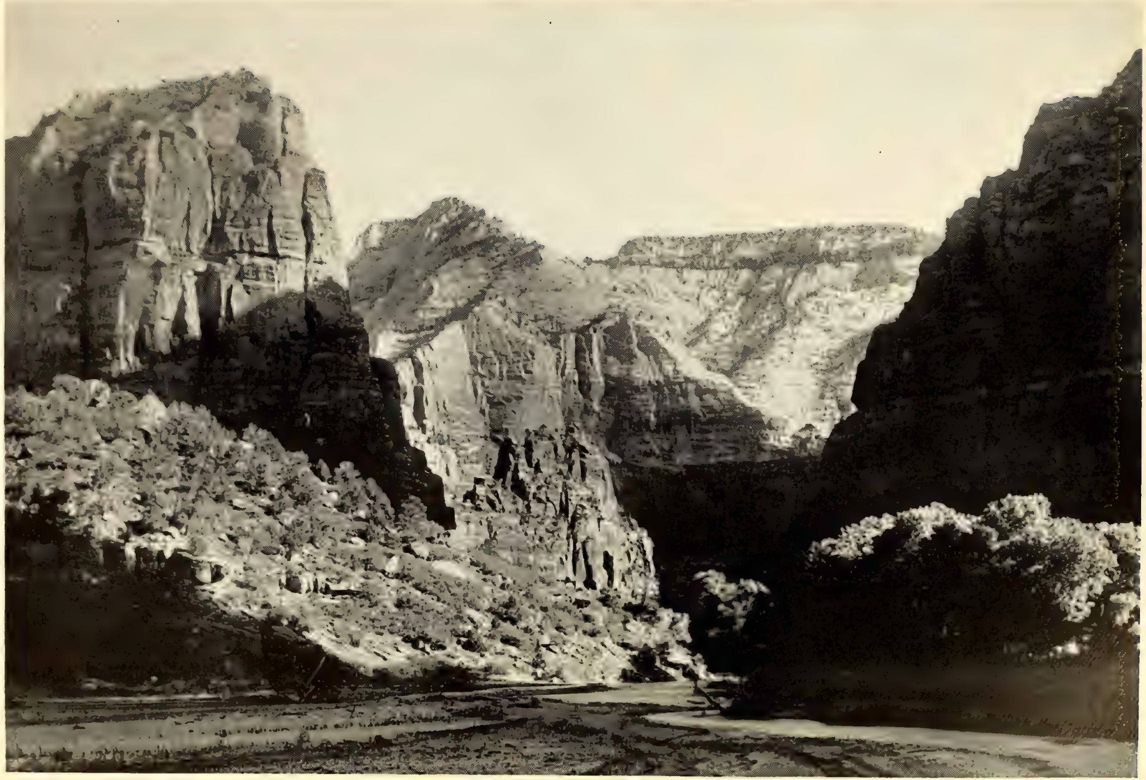
"The invasion of the enemy," is an expression that need not be limited to war usage. It exactly fits a condition of internal affairs here in the United States that is far removed from battlefields and warring men. The territories being invaded are the national parks. If the invasion continues these regions which belong to all the American people will be monopolized by a few individuals.

Certain interests, individual and collective, are constantly endeavoring to use these parks for their own commercial benefit. The friends of the people's playgrounds have again and again thwarted efforts that were being made to use these wonderlands for stock pasture. Now there are people who are taking advantage of the present need for increased food production, to secure permission to graze cattle and sheep in our national parks. Last summer certain stock men seized the opportunity offered by the urgent national need of food and undertook to get the Federal Government to permit grazing in parks. In California the friends of parks acted quickly and saved most of Yosemite. The stock men did succeed in getting possession of two comparatively small areas. Increased efforts are being made to pasture the parks in 1918.

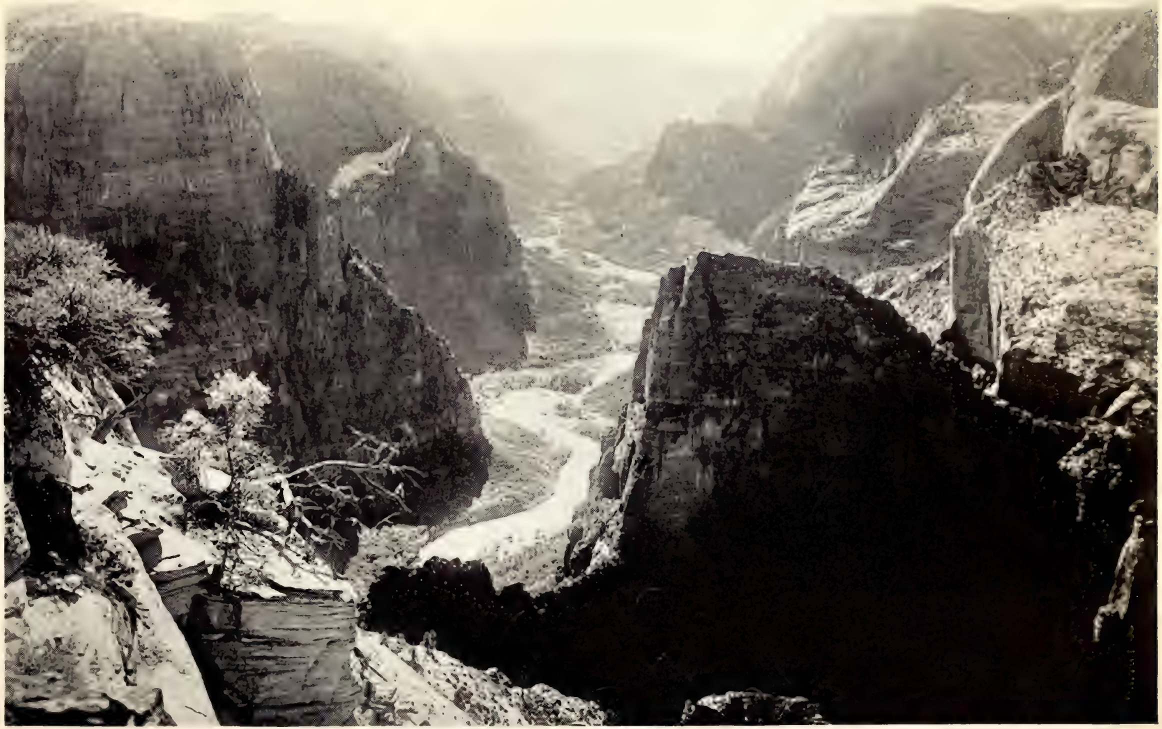
We all know that more mutton and more wool are needed, and that the sheep industry should be increased. Grazing grounds are essential, but there is ample opportunity for grazing outside of the national parks.

The Department of Agriculture says, "There remain practically no lands in the public domain (unreserved public lands) that are fit for any other use than for the grazing of livestock. They should therefore be used for that purpose." Does it seem reasonable to graze sheep in the national parks when there is government land not in use that is fitted for that purpose?

Then there are the national forests, covering an area of approximately one hundred and seventy-five million acres. Of this about five-eighths



ZION CAÑON
Courtesy of the Salt Lake Route



ZION CAÑON
Courtesy of the Salt Lake Route

is classed as grazing land—and is not forested as is commonly supposed. These grazing acres were reserved for grazing purposes and are being so used. But a part of these remain that are not now being grazed. Would it not be reasonable to make full use of this land before even considering the national parks for grazing?

A national park is an area that has been so created by Congress because it possesses unusual scenic attractions or features of scientific interest. The purpose of a national park is recreation, education, enjoyment, and the general welfare of the men, women and children of the land. The statesmen who created these parks did so because they realized that grazing or other commercialization would spoil them for use by the people. To graze national parks would prevent the use for which they were created and would ruin their scenic resources. The grand total area of the national parks is small. The total grazing area in national parks is exceedingly limited, and if all this grazing area were used it would produce only a small per cent of the wool and mutton needed.

By encouraging the grazing of sheep in available sections east of the Mississippi River and in the extensive unused lands in the South, a large increase in sheep production would result. By making the fullest use of the public domain, utilizing the national forests—which are mostly grazing land, and increasing sheep production east of the Mississippi and in the Southern States, there will be ample sheep to supply the demand. A. C. Bigelow, president of the Philadelphia Wool and Textile Association, says: "There is only one source left open now from which we can obtain an increase of sheep production, and that is in the farming sections east of the Mississippi River, and in the unused land areas of the South."

At the present time the use of our national parks for grazing is inexcusable. Sheep ruin parks for the use of people. They destroy one of the greatest attractions of the outdoor world—the wild flowers. But the sheep isn't to blame. It is his nature to eat wild flowers, and not only the blossoms, but the plants and then the roots. At Crater Lake National Park there isn't a wild flower to be seen. Years ago sheep grazed within the boundaries, and although they have not been in the park for years, the ground is barren of flowers.

There is a stock man in the West who is making every effort to get permission to graze thousands of head of sheep in Mount Rainier National Park. This park is the most wonderful wild-flower garden in all the world. This man, together with others of his kind, is asking for grazing privileges "during the period of the war." It is an old, insidious plan under the guise of patriotic motives. With wool and mutton bringing higher prices than ever before, we find sheep owners willing to use national parks for pasture for sheep at ten cents a head for the season. Is this patriotism?

During these war times the American people need their national parks more than ever before. And after the war the need will be still greater.

The parks are needed as nature made them—not despoiled by cattle and sheep.

The strength of a nation lies in the mental attitude of the people. And the right mental attitude is very largely acquired by wholesome recreation in the outdoor world—especially in places of scenic beauty. Such places as national parks help us to maintain our strength and courage and to gain a clearer vision of the problems and the emergencies of life. The English people admit that they made a serious mistake in the early stages of the war by neglecting outdoor recreation.

Early last summer there was some doubt in the minds of the people as to whether or not the national parks would be open on account of the war. Secretary Franklin K. Lane emphatically announced that they would be open as usual, and said: "It is even more important now than in times of peace that the health and vitality of the nation's citizenship be conserved. Rest and recreation must materially assist in this conservation of human tissue and energy, and the national parks offer opportunity for just this thing." During this same summer, the busy war year of 1917, five hundred thousand people found much-needed rest and were inspired to greater patriotism by visiting these wonderlands.

It would be a national calamity if the warring enemy could destroy the natural beauty of the United States. Grazing cattle and sheep in our national parks is a distinct step in this direction. The grazing of national parks discourages outdoor recreation. If livestock are in these parks there are thousands of people who would not go to them. And there are other thousands of people who, because of the presence of livestock, would naturally conclude that these natural wonderlands could be of no great merit for people if they were used for cattle and sheep. Our national parks—the world's unrivaled wonderlands—are the greatest places for outdoor recreation. Grazing in national parks would be the death blow to their supreme use. This would weaken us as a nation. You might let your senators and congressmen know that you value national parks. These men are so occupied with war matters these days that it may not occur to them that there is even a possibility of an invasion of this kind. Let them know that you are eager to defend our public playgrounds.

Mrs. John D. Sherman

∴

Opening of Zion Cañon—Utah's Scenic Wonderland

Nearly two generations have passed since the Mormon pioneers trekked southward along the west base of the Wasatch Mountains and made their first settlement in Southern Utah. Following up the waterway of the Rio Virgin in the location of their settlements, these pioneers passed eastward over the rim of the great "Hurricane" Fault, that has since been termed by geologists the greatest known break in the earth's surface, and, making their way to the upper reaches of the stream, came to the point where the Rio Virgin was formed by the conflux of two creeks

—one flowing from the east and the other from the north. From the tribes of the Piutes that then inhabited the country, the Mormons learned that the creek flowing from the east was called Paranuweap, and the one flowing from the north was known in Indian lore as Mukoontuweap. They were likewise told that where this northerly creek cut down through the mountains was a most beautiful cañon, emblazoned in many colors.

Later the great leader of the Mormon church, President Brigham Young, in one of his frequent visits to Utah's "Dixie," was told of the cañon's wonders and made what was then a most strenuous journey that he might view them. Standing at the southern portal of this geological marvel, between the two towering domes that mark its southern entrance, this religious enthusiast stood spellbound before the scenic splendor that faced him. With uncovered head, gazing far northward into the depths of the cañon proper, he declared to those accompanying the expedition, "This is Little Zion." To the Mormon zealots the christening by their leader was to them the final word, and from that time down through the years this great cleft on the southern spur of the Wasatch range has been known as Zion Cañon.

Located in this most remote section of Utah, far from the point where it might be reached by railroad travel, this American scenic marvel has remained practically unknown, only visited from time to time by some extreme enthusiast who had heard a faraway murmur of its grandeur. In 1913, Governor Spry's official attention was directed to the marvels of Zion Cañon, and after a personal visit, he decided that the highway division of his administration should accomplish the construction of a highway to the border of the National Monument, that had been set aside by President Taft to include Zion Cañon and its closely adjacent territory. In 1916, the United States Government, under the influence of Senator Reed Smoot, appropriated $15,000.00 for the construction of a highway connecting the heart of Zion Cañon with the southern boundary of the National Monument, to which point the State planned to carry its own highway. An east and west county road, from the station of Lund on the Salt Lake Route, had already been constructed, connecting with the State highway. With these connecting highways, the completion of the Government road into the cañon gave uninterrupted passage for automobile travel between the Salt Lake Route and Zion Cañon.

Even before the completion of the highway, a well organized transportation service between Lund and the cañon proper was arranged for, and in the very heart of the cañon itself there was a "Wylie Way" camp well under construction, founded upon the same plan for the entertainment of tourists and visitors that rendered the "Wylie Way" camps in the Yellowstone among the most successful enterprises of their kind in America. Thus was the opening of Zion Cañon brought about, and now the visitor may reach its wonders by a most interesting automobile ride of an even one hundred miles, starting at the station of Lund, on the Salt Lake Route, and proceeding over a splendid highway.

OVER KEARSARGE PASS IN 1864

[NOTE: On October 12, 1917, at Independence, Cal., Guy C. Earl, W. H. Spaulding and Chaffee E. Hall spent the evening with Thomas Keough, a boyhood friend of Mr. Earl in Owen's Valley. Mr. Keough has lived in Owen's Valley since 1863, and gave us some very interesting accounts of the early history of the valley, including the following story of a prospecting tour through the Southern High Sierras.]

On July 4, 1864, eleven of us started from Independence on a prospecting trip through the Sierras. Our first task was to build a trail up Little Pine Creek on the east cliff of the mountains. I have sometimes heard it said that the trail over what is now called "Kearsarge Pass" is an old Indian trail. The fact is, however, that our party built this trail in order to get our animals up over the top of the Sierras. It might have been possible for a man to work his way on foot up over this pass, but there was no sign even of a foot-path until we built the trail in the summer of 1864 when we started on this prospecting tour. We called the pass "Little Pine Pass," after Little Pine Creek, which heads near the pass. It was a rough trail we built, but it sufficed for our purposes and we got our animals up over it. In the party were John Bubbs, Tom Carroll, John Beveridge, Tom Hill, Henry Kettleston, Sullivan, Pugh and myself, with three others whose names I cannot recall. When we got up over the pass five decided to return, leaving six of us to go on.

We went westerly down the South Fork of the King's River until the cañon became impassable. In the cañon we met a number of scientists headed by Professor Brewer. They named Mt. Brewer after him. Prof. Brewer was trying to find a way across the mountains, and we told him how to get into Owen's Valley over the pass by the trail we had just built.

We kept in the cañon of the King's River to a point far west from where a large tributary flows in from the south. This tributary is called "Bubbs Creek." It was named for John Bubbs, who was one of our party. He was a cattle man and, afterwards, made his home in Visalia.

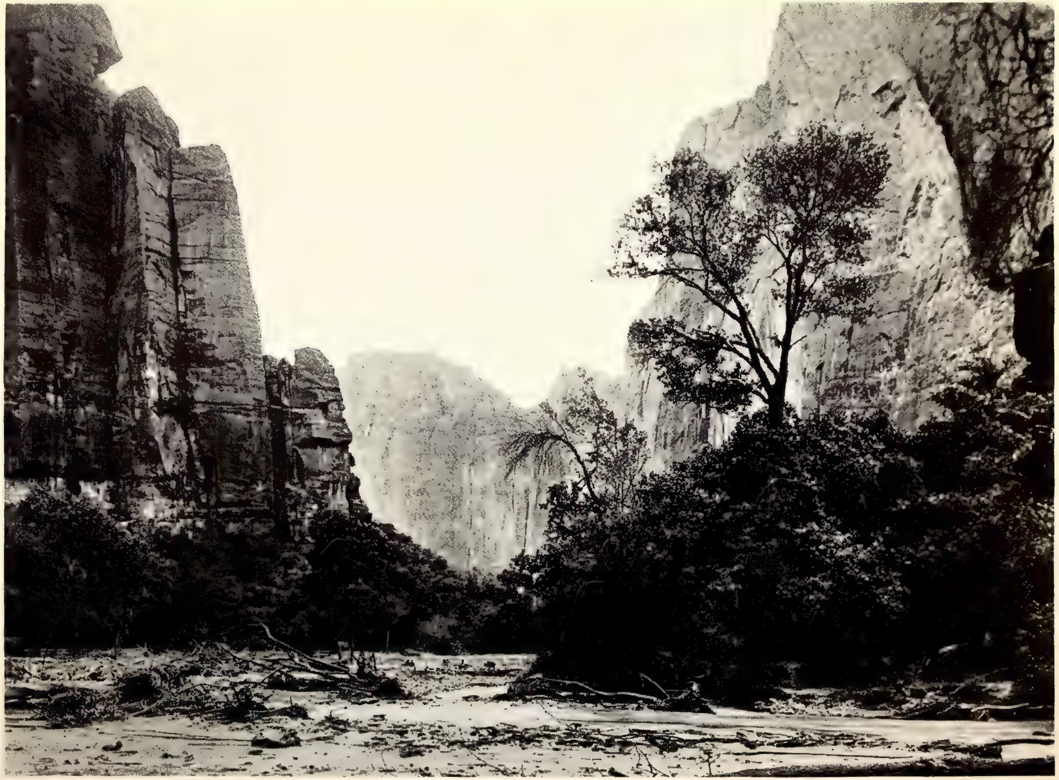
When the cañon of the King's River became impassable, we crossed the river and struck up the south wall of the cañon into the meadows, where we came across those mammoth trees—now called the Sequoias. I have no doubt those are the trees in what is now called the General Grant Park. We went around the trees and examined them, but made no marks on them. I have read an account of how these trees were "discovered" later and how one of them was called "General Grant,"* but this discovery occurred a number of years after our journey. From the plateau where we found these trees we traveled west until we came down into the valley where we found some placer miners. They were

---

[NOTE: In Prof. Brewer's party was Clarence King, whose "Ascent of Mt. Tyndall" described in thrilling fashion some of the experiences of the Brewer party on their explorations during this summer of 1864. Prof. Brewer in his account of the trip says: "A day and a half was required to make the distance of twelve miles which lay between Camp 179, in the south fork cañon, and the summit of the Sierra; although the labor of crossing was much facilitated by the fact that a party of prospectors had crossed here not long before and had done a good deal toward making a passable trail." California Geological Survey. Vol. I. Geology, p. 394.]

* These trees were not, however, discovered by Mr. Keough's party. They were known some years before this date.—J. N. Le C.

ZION CAÑON—THE THREE PATRIARCHS
Courtesy of the Salt Lake Route



ZION CAÑON—COURT OF THE PATRIARCHS

Courtesy of the Salt Lake Route

the first people we laid eyes on from the time we left Independence, except for Prof. Brewer and his party of exploring scientists. These placer mines down near the San Joaquin Valley were not showing up well. We, ourselves, tried it out and cleaned up only thirty-eight cents, so we decided to strike out to the northeast. We went north by the old Jackson ranch into Squaw Flat, across Squaw Flat and up into the mountains until we struck the South Fork of Joaquin River about 35 or 40 miles east from Middleton, an old mining camp on the San Joaquin. Then we followed the river, you might say, to its very head in the main Sierra Nevada. There we had for dinner the last of our stock of provisions. Beveridge and I took our pans and went over to a red hill where we got a good prospect; but we were out of grub. We struck east, hoping to find a way over the Sierras and down again into Owen's Valley, but we could not get any further east—got into the main mountains and then had to back out and work south. We worked south until we got down on to the North Fork of King's River. It was a terrific task working around granite cliffs and over great boulders with our horses. Beveridge and I got down on to the North Fork one day about sun-down with the animals. The rest of the boys had gone ahead and had been fishing all day, but could not catch any. Beveridge and I coming into camp with the horses asked the boys what they had got for us to eat, and they pointed up to a rattlesnake hanging on a limb that they had skinned for supper for us. I looked at John and asked him what he thought of it. I said, "It looks pretty tough," and John says, "Yes, I can't go that." Just while we were talking it over, two grouse lit in a tree. I grabbed the shot gun and brought down both of them. We made a little fire and after awhile scraped the fire away, dug a hole in the hot sand and put in the two grouse just as they were, feathers and all, piling the ashes and fire on the top of them. After about two and a half hours, we took them out and they were done to a turn. John Beveridge ate one of the grouse and I ate the other. Then we held a council and the next day slaughtered one of the horses. It was John Beveridge's horse, called "General Grant," an old horse about twenty-five years old. We made a rack out of green willows and jerked a lot of him and roasted a lot more of him in front of a big log fire. After we got everything ready we divided up the jerky and roast meat in our haversacks and struck south. We picked our way along with the animals, but the country kept getting rougher and rougher—deep cañons and precipices, a terribly rough, bouldery country—all bare granite. One of our party got part way down a cliff where he could neither get up nor down, and we had to tie our blankets together and let them down and pull him up. It was a several thousand-foot drop down below where he was on the cliff. We never could understand how he got down there. For two days we tried to work south. Finally we got into a cañon full of boulders, where we could neither get our horses one way or the other. They were so worn out and hungry that we finally killed them. They would have starved to death in that barren granite. We left our saddles and everything, and took only our clothes and necessary blankets and went on afoot. We lived entirely on horse meat. I don't know how horse meat might be with a little salt, but it certainly is not very nice without salt. It is just a sweet, sickening kind of meat without salt, and we tried to chew it as we traveled along, but the meat would keep swelling up in your mouth like a sponge until you could not work your jaws.

Traveling without the animals was easier, but the country kept getting even more impassable. In working down into one cañon, thousands of feet deep, we had to slide down a water-run. Sometimes we would slide thirty feet and fetch up on a bench, throwing our blankets on ahead. We camped down in one of these cañons one night and then, the next morning, started east in the hope of reaching the summit of the Sierra Nevada at a place where we could go down the easterly cliffs into the Owen's Valley. By night we had reached the summit at a place they now call "Taboose Pass," about eighteen miles north of Independence, and the next day we worked our way down the east cliff of the Sierras along Taboose Creek into Owen's Valley.

We had no map of the country, and none of the streams or mountains were named at that time, except the San Joaquin and the King's rivers. The first peak named, I think, was Brewer, named by the party of scientists we met.

The rest of our party, who left us soon after we climbed up over Little Pine Pass, found a gold mine near the pass on their way home which they called the "Cliff Mine." This mine developed into quite a rich ledge, and it was through this discovery that the pass came to be known as "Kearsarge Pass." Down in Owen's Valley, south of Independence, there is a low lying range of hills. In the early 60's the Hitchcock boys discovered a mine in these hills which they called the "Old Abe" mine, and they called their district the "Alabama District." They were Rebels and in those days "Old Abe" was a term of ridicule. But they named the district in honor of the Confederate cruiser "Alabama." These hills are now called the "Alabama Hills." Our crowd, however, were all Union men, and when the news came that the Kearsarge had sunk the Alabama, our boys named the district where the Cliff Mine was the "Kearsarge District" to taunt the Rebels. The little town which grew up at the mine was called "Kearsarge City," and the pass came to be called the "Kearsarge Pass," and the mountain just to the north of the pass "Kearsarge Mountain."

∴

Extract from Letter to Horace M. Albright

April 16, 1917

Dear Mr. Albright: While I have it in mind, there is one matter that we of the Sierra Club are very anxious that the National Park Service should undertake without delay, and that is the building of a trail from Hardin Lake on the Tioga Road down into Pate Valley, which is a Yosemite-like valley in the Tuolumne Cañon about ten miles above Hetch-Hetchy. Cross the Tuolumne River at this point and continue the trail on up to connect with the main Rogers Lake, Pleasant Valley Trail, on the other side of the Tuolumne. This trail is of immense importance for the development of the northern portion of the Yosemite National Park, and now that the Hetch-Hetchy crossing is to a great extent eliminated and undesirable, it has become doubly important that this trail should be opened up without delay so as to make the northern portion of the park accessible, and this will be the shortest route into it from the Yosemite, as well as making the finest portion of the Grand Cañon of the Tuolumne accessible. I had intended taking this up with Mr. Mather, but appreciate that it would mean too great a delay. This trail is mentioned on page 251, "National Park Notes," in a foot-note, to which note I call your attention.

Very sincerely yours,
WM. E. COLBY

∴

REPORT OF WORK DONE IN MUIR TRAIL, 1917

After my trip last year with Mr. McClure, the State Engineer, I was impressed with his belief that under no consideration should any but a Class A trail be constructed.

With this in view, I issued the following to Deputy Supervisor Jordan and Ranger Hughes before they entered upon the work:

> "The State Engineer insists on a Class A trail, and you will be governed by the specifications laid down in the trail manual for this type of trail. Tread should never be less than 15 inches, more if necessary to meet the situation. In location work the trail should be laid off in sections of like type, each section measured and numbered, and a record made of costs chargeable to each. Packing, grub and cook costs will be kept separate, to be pro-rated later.
>
> I want to impress upon both of you the importance of locating the trail properly, and I know that I can depend upon you to turn out a trail that we will be proud of."

This, of course, was supplemented by a thorough discussion of the whole project, so that we started on the work with our ideas of construction unified.

The work accomplished, although higher in cost than last year, is of a higher standard than ever before attempted on this forest, and will be, I am sure, a work that will bear the inspection of the most critical.

COSTS

As last year we divided construction work into three types, as follows:

Class A is solid rock, from 10 per cent to 100 per cent slope.

Class B is talus, consisting of small and large broken slides, and are at present impassable and require blasting.

Class C is general; dry and wet meadows, talus covered with earth, solid rock under 10 per cent, that requires only roughening, gravel and dirt slopes that do not require blasting, scattered boulder strewn flats and benches.

Type	Miles	Total Cost	Cost per Mile
A	.19	1556.80	7784
B	.41	310.73	758
C	7.3	2333.14	320
Total	7.9	4200.67	532
Bridges	Part of two	709.08	...
Total cost	....	4909.75	...

The following costs were prorated in the above:

Transportation, including wages of packer hire, of horses, loss of one animal, and feed	$ 965.00
Subsistence, including wages of cook	1237.19
Moving in and out, and moving camp	443.74
Total	$2645.93

The cost record shows $237.80 more charged against it than the expenditures. This is accounted for by:

Powder used, left over from last year	$137.80
Grub used, left over from last year	100.00
	$237.80

A few outstanding bills have not as yet been received, but they are figured into the cost record.

We have on hand practically enough equipment for next year. Powder on hand, 500 lbs. Will need 300 lbs. 20 per cent stumping for next year.

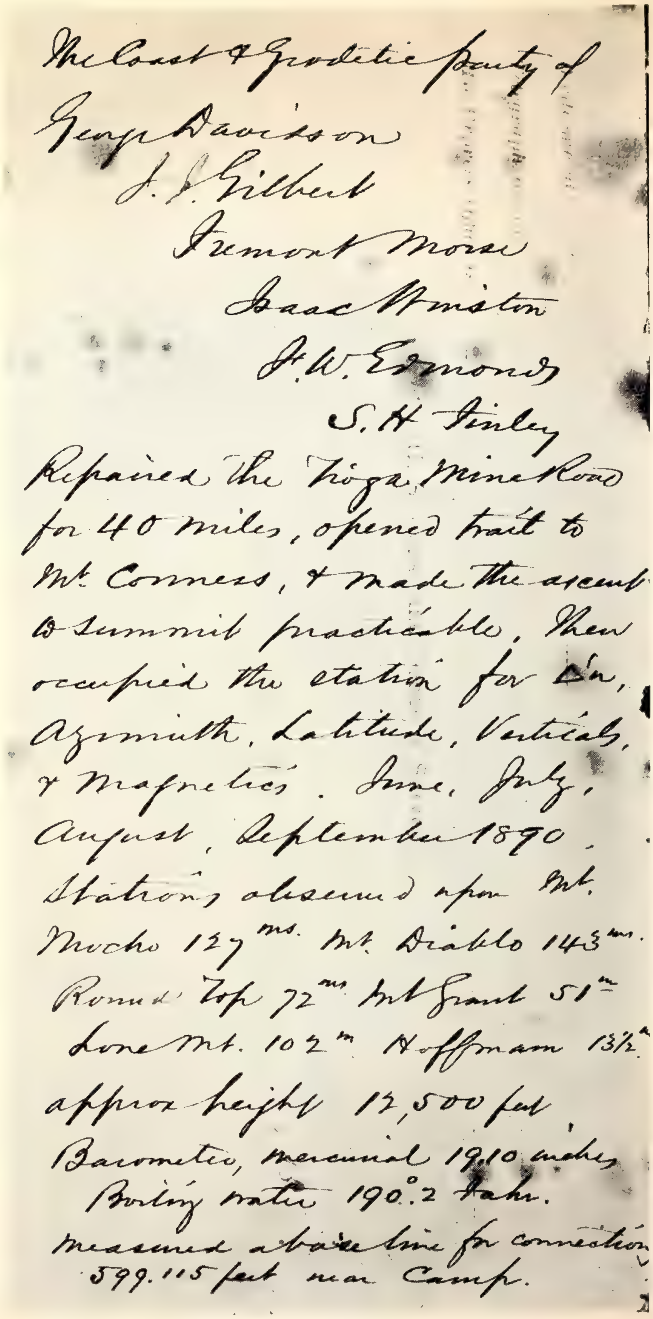
The greatest difficulty was experienced at Barrier Rock, some few miles below Muir Pass, on the Kings River side. This reef rises abruptly from the stream bed on both sides, and it was necessary to blast almost a half tunnel in order to get through it. Mr. McClure will, however, understand this, as he viewed this place on our trip last year.

This year was a difficult labor season, for even under normal conditions it is hard to keep men at these high altitudes.

FUTURE PLANS

I want to strongly recommend the use of all present and future appropriations on the Sierra Section, from Muir Pass north until completed. I base this recommendation on the fact that we are now fairly well organized, and have the equipment on the ground to continue, and it seems to me to be poor economy to divert small or large sums to start work on other portions that are perhaps in better shape to handle temporary travel than we are. The section from Palisade south can wait till the last, as travel can go down Kings to Simpson Meadow, and over to the South Fork by fairly good trails, while north the route is in bad shape.

LOOKING UP SOUTH FORK OF SAN JOAQUIN RIVER
Toward Mount Goddard, from near Hell-for-Sure Trail
Photo by H. H. Bliss



The Coast & Geodetic party of
George Davidson
J. J. Gilbert
Fremont Morse
Isaac Winston
J. W. Edmonds
S. H. Finley
Repaired the Tioga Mine Road
for 40 miles, opened trail to
Mt. Conness, & made the ascent
to summit practicable, then
occupied the station for △n,
Azimuth, Latitude, Verticals,
& Magnetics. June, July,
August, September 1890.
Stations observed upon Mt.
Mocho 127 ms. Mt. Diablo 143 ms.
Round Top 72 ms Mt Grant 51 m
Lone Mt. 102 m Hoffman 13½ m.
approx height 12,500 feet
Barometer, mercurial 19.10 inches
Boiling water 190°.2 Fahr.
measured a base line for connection
599.115 feet near Camp.

RECORD OF U. S. COAST & GEODETIC SURVEY
Left by party under Professor George Davidson on the summit of Mount Conness, 1890. Removed from the mountain by Walter L. Huber, July 24, 1917; now deposited in the official records of the Sierra Club

Next year I plan to start the crew at the bridges on the South Fork of the San Joaquin, and then work up to Muir Pass via Evolution as the season advances. To work to good advantage, the low country must be worked early, and when the snow goes off sufficiently on the higher elevations, stop work low down and attack the higher portions. There is usually only about 30 days you can work elevations of 11,000 feet or over, so we must get at them when the opportunity presents itself.

If we finish the Evolution Section, we can continue work from the Piute Bridge to Seldon Pass. I would, of course, plan to reserve enough money to get started in 1919 pending an additional appropriation.

I sincerely hope some better method of payment can be devised. It is impossible to keep men and maintain credit if bills are not paid more promptly.

I want to take this opportunity to commend very highly the work of Mr. Hughes as foreman of the crew. He has carried the work under some very difficult conditions in fine shape, and I hope he can again be assigned to it.

I attach map, photographs, and memo of Ranger Hughes on the season's work.

M. A. Benedict,
Forest Supervisor

FOREMAN'S MEMORANDUM OF SEASON'S WORK

The trail crew for this year's work left Cascada on June 24, and June 26 they reached Aspen Meadow, 1½ miles above the Piute Creek bridge. On June 27, camp was established and the tools assembled. On June 28 work was commenced at the bridge, working from there southeast up the South Fork of the San Joaquin. The foreman and Mr. Jordan, who went in with the crew to help lay out the trail, were impressed with the idea that this year we were going to build a better trail than we had ever built before, and the lowest percentage of grade obtainable was to be carried, and it must not exceed a maximum of 15 per cent.

A survey was made from Piute Bridge to the foot of the hill, at the mouth of Evolution Creek, a distance of 3½ miles. A very good grade was obtained, only in one place was 15 per cent used, and that only for a few rods, the average grade for the entire 3½ miles being less than 6 per cent.

It was proposed to build the trail up the South Fork, keeping on the north side of the river, and bridge Evolution Creek, and thereby avoid crossing the South Fork twice.

A good trail could have been built from the ford up, but it was found impractical to bridge Evolution Creek, and not even a good ford could be found, so this idea had to be given up.

The ford across the South Fork, below the mouth of Evolution Creek, has proved to be a very dangerous ford during high water. A man was drowned there last summer, and prior to that several head of stock had been drowned. This year we lost a pack mule on this same ford, for which the State has to pay.

Below the ford some good bridge sites are available, but the expense of building a trail up the river from them would be prohibitive. A site was selected a short distance above the ford, well out of the path of snowslides. A good foundation of solid rock, well above high water, was obtained on the north side. On the south side a reef of rock came down to the river, but had to be supplemented by a rock crib eight feet high. Cement was used to chink between the rocks on the side facing the river, and about four feet on each side. The span measured 68 feet and the stringers five by eight, with an average length of 40 feet, were hewed out, tent posts, caps, and mud sills were framed in extra lengths, the hangers were cut and flooring was split out, and everything was piled so that it would not warp.

From the lower bridge site to the upper one, a distance of 68 chains, the old trail ran through a meadow, and some very soft places had to be crossed that would have to be corduroyed, so a new route was surveyed around the meadow on the south side on an average grade of three per cent, which will always be high and dry.

The upper bridge site is a short span of 32 feet. It is about one-quarter mile above the mouth of Evolution, and as Evolution Creek carries about as much water as does the South Fork above it, there is much less water to cross than at the lower bridge. On the south side of the river we have a good foundation of solid rock well above high water. On the north side a bent 32 inches high, set on solid rock, can be used. All timbers for this bridge are framed and properly piled, with the exception of some flooring. No timber is available here that can be split, and poles will have to be used.

Some trouble was experienced in keeping men. A spirit of unrest seemed to be in the air, and four men quit. They claimed that there was no sense in working in so isolated a region when better wages and conditions could be had for the asking in places nearer to civilization.

A different system of packing was used this year; the pack train was kept with the crew and not allowed to stay over in Cascada any longer than was necessary to load the pack animals. The main part of the supplies were packed in during June and in the early part of July, and stored at Aspen Meadow. Extra stock had to be hired for this, and two men sent with the pack train, as the streams were too high for one man to safely handle the stock.

On August 10 this piece of work was completed, no very difficult places were encountered, and most of the blasting was done around two points, one below and one above Aspen Meadow. An average tread of 30 inches was maintained on this piece of trail.

On August 10, the camp was moved to the Muir Pass, and a camp established four miles below the top of the Pass at the last lake below Lake Helen; on the Kings River side work was commenced at Barrier Rock by the drillers, and the graders worked towards the Pass.

Notes were taken in the Pass of soft spots and places where the snow was lying, and a preliminary route was marked out. Below the pass, from Lake Helen down, the country was thoroughly looked over, and it was decided to abandon all the old trails and build the new trail up the river. Several switchbacks had to be used to get up on the first bench, and then for half a mile a very good piece of trail was built, about half of which is on a seven per cent grade, and the rest is 15 per cent. From here for about one-quarter mile around the shore of a lake it is level. From the upper end of this lake to the crossing below Lake Helen some short pitches of 15 per cent and several switchbacks were used, but a majority of this trail will not exceed 10 per cent.

Just below Lake Helen it will be necessary to cross a patch of snow, which will always be there. From Lake Helen to the top of the Pass, a distance of 1¼ miles, a good trail was built, and an effort was made to avoid all soft spots and build the trail away from places where the snow lies longest. One-quarter mile is 15 per cent, the rest averages less than 10 per cent.

At the top of the pass we stopped; no work was done on the west side.

Barrier Rock proved to be a very difficult piece of work. The rock laid in floors, tapering to a feather edge on the overhanging side, and when a tread was blasted out these floors would slide off. This was repeated several times before a tread was obtained that would hold, and a short pitch exceeding 20 per cent had to be used.

During the month of August thunderstorms were numerous, and during the latter part of September the nights were very cold. The crew were dissatisfied and trouble was experienced in getting them to stay with the work. Three months of this class of work is too long for an average crew to stay, and as no men could be hired to continue the work the crew had to be disbanded.

John M. Hughes,
Foreman Muir Trail

⁂

Bequest to the Le Conte Memorial Lodge

Mr. James B. Wade, who died in 1916, bequeathed the sum of twenty-five dollars to the Joseph Le Conte Memorial in Yosemite Valley, to be used in the maintenance of the lodge.

⁂

Following John Muir's Cassiar Trail

After leaving Mount Robson last summer, Miss Nettleton and I returned to Prince Rupert and continued up the Inside Passage to Skaguay. We were unfortunate in having cloudy weather, and except for one glorious day at the Taku Inlet, the high mountains remained persistently hidden. Even under such conditions, however, each day brought a succession of beautiful pictures that made the trip one long to be remembered. At Skaguay we took the White Pass Railway as far as Lake Bennett. We had planned, earlier in our trip, to return afoot over the old trail of '98, but were so discouraged by reports that bridges were out and the trail obliterated, that we gave up the idea. Much to our disgust, we found too late that this was only the usual wet-blanketing that every traveler suffers who attempts to set foot off the beaten track. From the car window we could follow the trail almost every step of the way, and though slides had occurred and a bridge was gone, in August, at least, neither stream crossing nor trail presented any real difficulty to any one accustomed to trail travel.

At Skaguay I parted with my traveling companions and took an American boat down to Wrangell. Five years ago, when Mr. Muir began work on "Travels in Alaska," my aspirations were turned toward the Stikine River, and I determined to take the first opportunity to follow his old trail. Opportunity came this year when I met Mrs. Winifred Hyland, trader, fox-farmer, outfitter for big-game hunters, and adviser and court of appeal to at least a hundred Indians. On her invitation I promptly abandoned family and friends and started trustfully alone on the hundred-and-fifty-mile journey up the wild and lonely Stikine. A boat runs up once a week during the scant five months of the year when the river is open. Mine was a tunnel boat about forty feet long, with a powerful gasoline engine which forced her slowly but surely up against the powerful current. It took us from Tuesday morning at ten until Thursday morning at nine to go up, though we made the return journey in ten hours. Travel is not heavy on the Stikine now. Forty years ago, Mr. Muir says, nearly two thousand miners went up the river in a single summer. This year I doubt whether there were more than fifty people in all. Despite the war, eleven big-game hunters went; one family from Oregon settled up river; one mine was in operation with six men from "outside"; two or three soldiers came back from the war; a new schoolmaster and a new doctor arrived. I myself represented the whole bulk of tourist travel—considerably less than a hundred and fifty pounds I hasten to say.

The river trip is marvelously beautiful. Mountains, all of them snowy and glacier-hung, tower from four to eight thousand feet above the river. The shores are densely forested, for the most part with hemlock and tideland spruce. The most remarkable of the glaciers, the Great Glacier, breaks off at the river brink in a colossal wall three miles in width. Telegraph Creek, trading post and center of population for a district of some fifty thousand square miles, I made my headquarters. The whole district at present numbers only about thirty whites—it has sent twenty-nine men to the front. During the first part of my stay here I made day trips in all directions and two short camping trips—one across the Stikine, the other thirty-five miles downstream, near the Jackson cabin. Captain Conover, a neighbor on the Clearwater, seven miles away, who has lived on the river for twenty years, offered himself as guide, and with him I went canoeing through rapids, mountain climbing, and big-game hunting with a kodak. We saw six bears and eleven goats, but unfortunately secured no pictures.

During my last three weeks in the country, with a half-breed girl as companion, I traveled with three Indians and a Hudson's Bay Company packtrain over the old miner's trail to Dease Lake, seventy-five miles northeastward from Telegraph. We crossed the Arctic-Pacific Divide into Mackenzie River headwaters, journeyed by scow thirty miles down the lake, and then afoot took a "knapsack" trip some twenty-five miles further, packing our outfits on the backs of three dogs. To carry a pack upon one's own back would be to lose caste utterly in the eyes of the Indians. We visited the one mine now in operation on Thibert Creek and continued on with our novel packtrain to the base of Defot Mountain. I had planned to climb it for the view to northward of which Mr. Muir speaks, but a snowstorm prevented and we had to hasten back to Dease Lake the next day to meet the last outgoing packtrain of the season. I was the first white woman, so they told me at the mine, who had ever traveled in that region "for fun."

MARION RANDALL PARSONS

∴

ECONOMIC DESTINY OF THE NATIONAL PARKS

[Passage from an address by J. Horace McFarland delivered at the National Park Conference, Washington, D. C., January, 1917]

I insist the time must soon come when instead of having national parks created by accident or through the devotion of some interested man, we must have a system of national parks all over the land in order to accomplish the upbuilding of patriotism. . . . Congress now has spent a gigantic sum on the national parks—nearly a quarter of a cent per person a year. If it would spend a half cent per year per person for parks, I think Mr. Mather would think the millennium had arrived. And if 1 cent per person per year was provided, he would be unable to comprehend all that could be done for our national parks. Yet Philadelphia spends $1.40 per person for park purposes; Milwaukee, 93 cents; Pittsburgh, 53 cents. Why should not the United States spend a whole penny for each of us annually in our national parks?

Let me put it in another way. The United States spends the gigantic sum of $700 a day on its vast areas of marvelous natural wonders; Philadelphia $655 on her little bit of most inadequate park area; Milwaukee gets away with $1,076; and even smoky Pittsburgh spends $862 per day on her parks, which Pittsburgh knows is better than extending cemeteries and providing more policemen.

We need extension of the sort of national park promotion we have recently had. Indeed the kind of management that has been going on the last eighteen months in the National Parks Service is so near business management that I do not see how it can have happened in Washington. Here are Mr. Mather and Mr. Yard, business men, actually managing national parks as if they were a business enterprise. It is extraordinary; but I wish it might be extended, and that we might have a whole lot more of it, and that they might be given money, much real money to do the job, such as Mr. Schwab would give them if they were working for the Bethlehem Steel Corporation.

I am not throwing mud at Congress, because Congress does the best it knows how, and we who elect its members are the responsible persons. When we get around to having a budget in the United States and working with it like any business man, then we will get plenty of money for parks; but I do not want to wait so long. This appropriation of 1 cent apiece for every inhabitant of the nation ought to come right away, this session; and it should be an automatic, continuing, annual appropriation of 1 cent apiece. That would mean the automatic increase of the support in proportion to the population. . . .

"The economic destiny of national parks" is to promote patriotism; but there is another aspect to it. If we want to be a little bit calculating —and Americans are sometimes said to be a little sordid—then, the economic destiny of the national parks is to bring a tremendous amount of money into the United States from abroad. I wonder if you realize that the one great natural wonder of the United States which is most attractive, and which is not yet safe until it becomes a big national park —Niagara Falls—is estimated to produce $30,000,000 a year of travel revenue outside of any power use that has been taken from it. Niagara Falls is easily accessible and is visited by 1,500,000 people each year. There is one truly tremendous travel revenue possibility for the United States—a possibility beside which the doings of Switzerland in attracting visitors might sink into insignificance. Indeed, Switzerland could be lost in Rocky Mountain Park. If we are willing to provide the conditions and facilities, the handling of the national parks becomes a purely economic proposition; an investment, not an expense.

But the greatest of all park products, Mr. Chairman and ladies and gentlemen, is the product of civilization, the product of patriotism, the product of real preparedness, the product of manhood and womanhood, unobtainable anywhere else than in the broad, open areas which alone the nation can provide. There, ladies and gentlemen, is a product which we must promote and which we must have, and everything we can do and everything we can spend which will increase the facilities of the United States for intensifying our all too feeble national spirit for increasing the fervor and vigor of our spirit of devotion to the country— every such thing we can do is thoroughly worth while. That is then, ladies and gentlemen, the "economic destiny of the national parks" of the United States.

∴

HON. J. ARTHUR ELSTON,
House of Representatives,
Washington, D. C. May 8, 1917.

Dear Sir: At a meeting of the Board of Directors of the Sierra Club held in San Francisco on May 5, 1917, the secretary was requested to state to you its position in regard to certain proposed changes in the boundaries of and administration of the Yosemite National Park.

It has been brought to the attention of the board that a petition has been presented to the park authorities which, if adopted by Congress, would cut out of the park a large section, about 100 square miles, throwing the same into the forest reserve. This includes the region in the vicinity of Moraine Meadows and Buck Camp, and in fact includes the entire upper basin of the South Fork of the Merced River, part of the basins of the Illilouette River and main Merced. The object of this petition is to open the area to grazing. The Board of Directors of the Sierra Club is unalterably opposed to any changes in the present boundary of the park, and considers the present proposed change particularly objectionable, as it eliminates some of the finest alpine regions, and also because the suggested boundaries follow section lines only, and not natural barriers which could be properly patrolled.

It has also come to the attention of the Board of Directors that a movement is on foot this year to have the United States Government throw open the Yosemite National Park to stockmen for the grazing of sheep and cattle, due to the possible shortage of foods consequent upon war conditions, and particularly because of the shortage of feed in California this year. The directors feel that no sentiment should stand in the way of so vital a matter as the food supply in the face of so momentous a situation as now confronts the people of this country, and would not oppose such a movement, disastrous as it might be to our great park, if it were absolutely *necessary.* But they are not convinced that it is absolutely necessary this year. The whole forest reserve is now open to grazing, and the small region within the boundaries of this national park, which has been carefully preserved for the past twenty-five years, could not appreciably affect the situation. There are certain stock-grazing interests which for years have been trying to get these privileges within our national park, and are using the present crisis as a leverage to accomplish their purpose.

The directors beg of you to look into these matters with great care, for once the precedents are established it will be difficult to change them.

Very truly yours,

William E. Colby

∴

The Associated Mountaineering Clubs of North America

In May, 1916, nine clubs and societies with common aims associated themselves in a bureau, with headquarters in New York. The membership now numbers ninety-two, comprising about 16,000 individual members, as follows:

American Alpine Club, Philadelphia and New York.
American Civic Association, Washington.
American Museum of Natural History, New York.

Appalachian Mountain Club, Boston and New York.
British Columbia Mountaineering Club, Vancouver.
Colorado Mountain Club, Denver.
Explorers' Club, New York.
Field and Forest Club, Boston.
Fresh Air Club, New York.
Geographic Society of Chicago.
Geographical Society of Philadelphia.
Green Mountain Club, Rutland, Vermont.
Hawaiian Trail and Mountain Club, Honolulu.
Klahhane Club, Port Angeles, Wash.
Mazamas, Portland, Oregon.
Mountaineers, Seattle and Tacoma.
National Association of Audubon Societies, New York.
Prairie Club, Chicago.
Rocky Mountain Climbers' Club, Boulder, Col.
Sage Brush and Pine Club, Yakima, Washington.
Sierra Club, San Francisco and Los Angeles.
United States National Parks Service, Washington.

Among the common aims, aside from the exploration and mapping of mountain regions and the ascent of leading peaks, are the creation, protection, and proper development of National Parks and Forest Reservations, the protection of bird and animal life, and of trees and flowers. Many of the clubs and societies issue illustrated publications on mountaineering, exploration, and conservation, and are educating their members by lectures to a deeper appreciation of nature.

The bureau publishes an annual bulletin giving the officers, membership, dues, publications, lantern slide collections, outings, and other matters of interest of each club. Data on mountains and mountaineering activities are supplied in response to inquiries.

Acquaintance with the literature of a subject is essential to efficient work in the field, and the bureau sends many important new books on mountaineering and outdoor life to its members free of charge. A large collection of mountaineering literature has been gathered in the central building of the New York Public Library, and the American Alpine Club has deposited its books therein, providing a permanent fund for additions. A bibliography of this collection has been published by the library. An extensive collection of photographs of mountain scenery is being formed and is available to anyone wishing to supplement the literature of a region with its scenery.

Le Roy Jeffers, Secretary
476 Fifth Avenue, New York

∴

The Tehipite Valley and the Kings River Cañon, Greater Sequoia

Address delivered at the Washington, D. C., National Parks Conference by Robert Sterling Yard

When I began to study our national parks in preparation for the great work we had undertaken, the glories of the Sierra stood out before my mental vision perhaps in more stupendous relief than any other feature. At this time I was drawing my knowledge from books and men; as yet I had visited no national parks; and the men were enthusiasts.

Almost from the first I learned of the great country between Yosemite and Sequoia, which ought to be a national park some day. In fact that is what I called it, the Ought-to-be-Sequoia, before the name Greater Sequoia was devised. Before I knew anything definite about any other valley in our national parks besides the Yosemite Valley, I was familiar with the fact that the Kings River Cañon and the Tehipite Valley were, next to Yosemite, the grandest valleys on this continent. My teacher was Robert Bradford Marshall, Chief Geographer of the United States Geological Survey, and chief lover of national parks. His splendid enthusiasm kindled the fires in me.

Few whom I had then met had yet seen these valleys, and few I have met since have seen them. They are almost unknown today outside of California, and little known there. Not even Muir, so far as I know, described them, though I have found various references to both in his writings. Yet they are destined to become celebrated next to Yosemite's incomparable valley. I expect to see the day when the three shall inevitably be mentioned together.

Both originate in the everlasting snows of the Sierra summits. The Middle Fork and the South Fork of the Kings River, respectively, have carved them from the living granite. Each lies east and west, a short day's journey, as the trail winds, apart. It was my great fortune to see both last summer, and I can best picture them by reading brief extracts from a record of that trip. (Reads:)

Time will not dim our memory of Tehipite or the august valley or the leaping, singing river as we saw them on that charmed day. Well short of Yosemite, in the kind of beauty that startles and bewilders, the Tehipite Valley nevertheless far excels it in bigness and power and majesty. Lookout Point, a couple of miles south, afforded our first sensation. Here the rising trail emerged upon a broken mass of rock standing well out over the head of the cañon and 3000 feet above it, disclosing Tehipite Dome in full relief. It is one of the great views, in fact it is one of the very greatest of all our views, and by far the grandest valley view I have looked upon, for the rim view into Yosemite by comparison is not so grand as it is beautiful. The cañon revealed itself to the east as far as Mount Woodworth, its lofty diversified walls lifting precipitously from the heavy forests of the floor and sides, and, from our high viewpoint, yielding to still greater heights above. Enormous cliffs abutted, Yosemitelike, at intervals. South of us, directly across the cañon, rose the strenuous heights of the Monarch Divide, Mount Harrington towering 1000 feet higher above the valley floor than Clouds Rest above the Yosemite.

Down the slopes of the Monarch Divide, seemingly from its turreted summits, cascaded many frothing streams. Happy Gap, the Eagle Peaks

Blue Cañon Falls, Silver Spur, the Gorge of Despair, Lost Cañon—these were some of the romantic and appropriate titles we found on the Geological Survey map. And, close at hand, opposite Mount Harrington and just across Crown Creek Cañon, rose mighty Tehipite. We looked down upon its rounded, glistening dome. The Tehipite Dome is a true Yosemite feature. It compares in height and prominence with El Capitan. In fact it stands higher above the valley floor and occupies a similar position at the valley's western gate. It is not so massive as El Capitan and, therefore, not so impressive; but it is superb. It is better compared with Half Dome, though again not so impressive. But it has its own august personality, as notably so as either of these world-famed rocks; and, if it stood in the Yosemite, would share with them the incomparable valley's highest honors.

From the floor the whole aspect of the valley changed. Looking up, Tehipite Dome, now outlined against the sky, and the neighboring abrupt castellated walls, towered more hugely than ever. We did not need the map to know that some of these heights exceeded Yosemite's. The sky-line was fantastically carved into spires and domes, a counterpart in gigantic miniature of the Great Sierra of which it was the valley climax. The Yosemite measure of sublimity, perhaps, lacked, but in its place was a more rugged grandeur, a certain suggestion of vastness and power that I have not seen elsewhere. The impression was strengthened by the floor itself, which contains no suggestion whatever of Yosemite's exquisiteness. Instead, it offers rugged spaciousness. In place of Yosemite's peaceful woods and meadows, here were tangled giant-studded thickets and mountainous masses of enormous broken talus. Instead of the quiet, winding Merced, here was a surging, smashing, frothing, cascading, roaring torrent, several times its volume, which filled the valley with its turbulence.

Once step foot on the valley floor and all thought of comparison with Yosemite vanishes forever. This is a different thing altogether, but a thing in its own way no less superlative in its distinction. The keynote of the Tehipite Valley is wild exuberance. It thrills where Yosemite enervates. Yet its temperature is quite as mild.

The Kings contains more trout than any other stream I have fished. We found them in pools and riffles everywhere; no water was too white to get a rise. In the long greenish-white borders of fast rapids they floated continually into view. In five minutes watching I could count a dozen or more such appearances within a few feet of water. They ran from 8 to 14 inches. No doubt larger ones lay below. So I got great fun out of picking my particular trout and casting specially for him. Stop your fly's motion and the pursuing fish instantly stops, backs, swims round the lure in a tour of examination and disappears. Start it moving and he instantly reappears from the white depth where no doubt he has been cautiously watching. A pause and a swift start often tempted to a strike. These rainbows of the torrents are hard fighters. And many of them, if ungently handled, availed of swift currents to thresh themselves free. You must fish a river to appreciate it. Standing on its edges, leaping from rock to rock, slipping thigh deep at times, wading recklessly to reach some pool or eddy of special promise, searching the rapids, peering under the alders, testing the pools; that's the way to make friends with a river. You study its moods and its ways as those of a mettlesome horse. And after a while its spirit seeps through and finds your soul. Its personality unveils. A sweet friendliness unites you, a sense of mutual understanding. There follows the completest detachment that I know. Years and the worries disappear. You and the river dream away the unnoted hours.

The approach to Granite Pass en route from the Tehipite Valley to the Kings River Cañon was nothing short of magnificent. We entered a superb cirque studded with lakelets. It was a noble setting. We could see the pass ahead of us on a fine snow-crowned bench. We ascended the bench and found ourselves, not in the pass, but in the entrance to another cirque, also lake-studded, a loftier, nobler cirque encircling the one below.

But surely we were there. Those inspiring snow-daubed heights whose sharply serrated edges cut sharply into the sky certainly marked the supreme summit. Our winding trail up sharp rocky ascents pointed straight to the shelf which must be our pass. An hour's toil would carry us over. The hour passed and the crossing of the shelf disclosed, not the glowing valley of the South Fork across the pass, but still a vaster, nobler cirque, sublime in Arctic glory!

How the vast glaciers that cut these titanic carvings must have swirled among these huge concentric walls, pouring over this shelf and that, piling together around these uplifting granite peaks, concentrating combined effort upon this unyielding mass and that, and, beaten back, pouring down the tortuous main channel with rendings and tearings unimaginable! Granite Pass is astonishing! We saw no less than four of these vast concentric cirques, through three of which we passed. And the Geological Survey map discloses a tributary basin to the east inclosing a group of large volcanic lakes and doubtless other vast cirque-like chambers. We took photographs, but knew them vain.

A long, dusty descent of Copper Creek, which McCormick correctly diagnosed as something fierce, brought us, near day's end, into the exquisite valley of the South Fork of the Kings River—the Kings River Cañon. Still another Yosemite!

It is not so easy to differentiate the two cañons of the Kings. They are similar and yet very different. Perhaps the difference lies chiefly in degree. Both lie east and west, with enormous rocky bluffs rising on either side of rivers of quite extraordinary beauty. Both present carved and castellated walls of exceptional boldness of design. Both are heavily and magnificently wooded, the forests reaching up sharp slopes on either side. Both possess to a marked degree the quality that lifts them above the average of even the Sierra's glacial valleys. But the outlines here seem to be softer, the valley floor broader, the river less turbulent. If the keynote of the Tehipite Valley is wild exuberance, that of the Kings River Cañon is wild beauty. The one excites, the other lulls. The one shares with Yosemite the distinction of extraordinary outline, the other shares with Yosemite the distinction of extraordinary charm. The greater of these two cañons is destined to become famous under the name of its part, the Tehipite Valley; the lesser will have the undivided possession of the title, Kings Cañon. Tehipite is as distinctive and unusual a name as Yosemite. But the Middle Fork of the Kings is by far a greater stream from every point of view than the beautiful South Fork. Looking ahead, this cañon of the South Fork seems destined to the quicker and the greater development. It is broader, flatter, and more livable. It lends itself to hostelries, of which two already exist. It is more easily reached and already has some patronage. Moreover, from its name and position, it is the natural recipient of whatever publicity grows out of both. Tehipite has to build from the ground up.

There are few nobler spots than the junction of Copper Creek with the Kings. The Grand Sentinel is seldom surpassed. It fails of the personality of El Capitan, Half Dome, and Tehipite, but it only just fails. If they did not exist, it would become the most celebrated rock in the Sierra, at least. The view up the cañon from this spot has few equals. The view down the cañon is not often excelled. When the day of the Kings River Cañon dawns, it will dawn brilliantly. We loped and ambled and galloped down this gorgeous valley, filled to the brim with the joy of its broad forested flats and its soft invigorating air. The walls were glorious. Those in shadow were clothed in purple, streaked and blotched with yellows and many dark ochers. Large areas were frosted with grays of many shades, some on abutting cliffs shining like silver. The walls in sunlight showed interesting differences. The purples of the shaded side now became dark grays; the light grays, white. The yellows faded or acquired greenish tints. Here and there in broad sunlight appeared splotches of vivid green, probably stains of copper salts.

∴

A TRIP TO CRATER LAKE ON SKIS

Crater Lake has always proved a powerful magnet in drawing me there at different seasons, and I have made my pilgrimages in various ways—by wagon, horseback, mule-team, auto and snow-shoes. I decided last March to attempt the trip on skis. . . .

Mr. Frank I. Jones and I left Klamath Falls March 12, 1917. It was a cold, clear day. We followed the shore of Upper Klamath Lake, Mt. Shasta and Mt. McLoughlin, better known as Mt. Pitt, appearing across the broad white expanse, for the lake was a solid sheet of snow-covered ice. . . .

At Chiloquin we bundled into a straw-filled sleigh; thirteen persons occupied the seats, with a big red rooster in a crate as rear guard and superstition chaser. . . . The snow had gradually deepened to over four feet as we neared Fort Klamath. . . . The outlook Tuesday morning was not promising. Over a foot of snow had fallen during the night. It was still snowing, and the heavy gray sky gave no assurance of any immediate change for the better. . . . From the Copeland place we continued our way on skis. Our packs averaged over thirty-five pounds each. . . . In addition to the provisions and personal effects, we had snow-shoes strapped on our packs for emergency use. . . . We pushed on through the soft snow, taking turns breaking trail through the pine forest. Another snowstorm about mid-afternoon shut out the sun and we looked for mile-posts or signs. Cheered by the sight of a blue enameled sign on a nearby pine, we turned aside to investigate. After poking the snow away I unearthed, or rather unsnowed, an ice-cream sign. For the first time it failed to awaken a responsive chord. About five o'clock a peaked snow mound, rising slightly above the level, announced our destination. A shovel thrust in the snow under the peak gave us the means to clear an entrance, and we soon ferreted below and entered the cabin of the Wildcat ranger station at the park entrance. . . .

Wednesday morning promised fair, sunshine and blue sky following a starlit night. We left our snow-shoes behind as useless luggage and started up the road, tall, high-crested yellow pines casting long shadows on a spotless floor of white. Soon we neared the rim of Anna Creek Cañon, frequently enticed to the very edge for the enchanting view of the stream, a green twisting ribbon far below. White slopes alternated with sheer walls of colored rock, columns and spires upthrusting here and there. . . . After eight hours of continuous plodding we reached the deep-set curve where a timber-cribbed opening under a deep floor of snow showed us Bridge Creek, the only bridge on the road. We found out later that this was five and three-quarter miles from Wild Cat. . . . It was after sunset when we reached Headquarters, where we were most cordially welcomed by H. E. Momyer, acting superintendent of the park. Fourteen feet of snow on the level necessitated going down a snow stairway to the front door. Mr. Momyer was monarch of all he surveyed, his only companions, bluejays, feathered camp robbers, and a pine marten, all so tame that a robber ate from his hand, and the marten overcame all caution in his eagerness to secure scraps of the fresh meat we had brought. His dark lithe body appeared like a shifting silhouette against the snow stairway. . . .

Thursday morning registered seven degrees above zero—clear, cold and snappy. . . . Friday afternoon we went up the low gap where the old road meandered to the rim, and came out on the lake at the base of Castle Crest. The sun was setting, giving a warm glow to the snow in the light, and cold gray to the snow in shadow. In the shadow below lay Wizard Island, a white cone; The Watchman, Glacier and Llao rose on the western rim, kindled by the last rays, which in turn brought out Thielsen in sharp relief to the north, with blue sky above. The scene was sublime, one feature only missing—the marvelous blue of the lake. To our great surprise, the lake was frozen, fully three-quarters of its surface being ice-covered. We had been told that the lake never froze, and could not freeze, because of its phenomenal depth, constant temperature and surface-ruffling winds. . . . Shasta and Union peaks appeared to the south, from different points on the road leading westward along the rim towards the Watchman. The sun frequently burst through the white clouds to reward our patience. . . .

Sunday found a slight snow falling, giving a cushion for the skis and smoothing out irregularities. Reluctantly bidding our host farewell, we started down to Fort Klamath. Our skis needed no urging and no guiding. Down the broad road and around the broad curves on a gently descending grade they kept the deep grooves, so arduously made on the ascent, and nothing could ever be more wonderfully enchanting and exhilarating. R. L. Glisan

(Quoted from *Mazama,* December, 1917.)

∴

Hon. Franklin K. Lane,
Secretary of the Interior, Washington, D. C.
Seattle, Washington, January 18, 1918

My Dear Sir: As president of The Mountaineers, Incorporated, I am requested by that organization to communicate with you in regard to the proposal to pasture sheep in the Mount Rainier National Park.

I approach the subject with care for I know the ease with which the thought or the expression of "Obstructionist" may arise when anyone calls in question any suggestion that seems to aim at the increase of food. Our organization is patriotic and not obstructionist in any sense. We are proud of our service flag of twenty-eight stars and more to be added. When the call of digitalis came our members organized crews. They are still gathering large quantities. The women of the club are working with the Red Cross in producing sphagnum moss bandages. We have nearly emptied our treasury in buying Liberty Bonds.

If we thought the wonderful wild flowers of the Mount Rainier National Park were necessary to produce more wool and mutton for the use of the nation, we would endure the sacrifice in silence. We do not believe that such is the case, and we respectfully request that you exercise firmly your power to safeguard this great park from the destruction that is impending.

Everyone knows how completely these large bands of sheep destroy the flowers and verdure of the wild places overrun by them. Every year our members, visiting mountains where sheep grazing is permitted, encounter new barren places, made barren and desolate by heavy sheep grazing. Mount Rainier National Park should certainly be saved from that sort of devastation.

While the matter was up for discussion, several of our members declared that they would gladly pasture sheep on their city lawns if by so doing they could save the National Park. We believe that thousands of city folks would gladly make that kind of sacrifice to save the park.

As we see the threatening problem, you are the one officer in the nation who can solve it. You can surely save the Mount Rainier National Park and devise other ways of meeting the needs for wool and mutton.

In a spirit of patriotism, not only for the time of this crisis of war, but for all the years to come, we appeal to you to protect Mount Rainier National Park from the destruction now pressing towards it.

Yours faithfully,
EDMOND S. MEANY,
President of The Mountaineers, Incorporated

⁂

Wellcroft, Helensburgh, Scotland,
December 30, 1917

Dear Mr. Colby:

You may remember me as a guest of the Sierra Club in 1913, a brother of your "Mountain Goat." I want you to give my name and address to any of your young soldier friends (especially Sierrans) who intend to head for Scotland when they're taking leave from killing the enemy Boches. I'll be pleased to put them up here to the extent of two at a time. If twenty came at once, I'll hand out digging tools and they can construct a dugout in my back garden, and I'll see the Food Controller about extra rations.

Time was when I did a lot of drill in the "Territorials" on my feet. Now I'm called a "Volunteer" and do my drill on my stomach like a snake. They cheer me up by calling it machine-gun drill, and assuring me I shall be quite useful for home defence.

I shall get a small "Old Glory" ready for the coming of your friends.

Yours truly,
J. RENNIE

⁂

SODA SPRINGS PROPERTY, TUOLUMNE MEADOWS

To the Members of the Sierra Club:

Those members of the club who camped last summer on the Soda Springs property in the Tuolumne Meadows, which is now under the control of the club, appreciated more than ever the wonderful value of this property as a club asset. A more appropriate building than the Parsons Memorial Lodge could hardly be conceived, for with its stone walls and heavy log roof, it is entirely in harmony with the natural surroundings. While the lodge has been kept open during the summer and information given to the public, a more permanent headquarters should in time be established there so that our members can make it a central camping place from which to take side trips, and where their property can be taken care of in their absence.

The necessity for making a new arrangement for financing this property will arise in the near future, as only about one-third of the ownership is now vested in the club itself. Many members have donated their shares to the club; a few shares have been purchased by special arrangement, and during the past year two were exchanged for life memberships. The latter plan appears the most feasible as far as the club itself is concerned, but we would like suggestions from members as to what shall be done in the future in the way of acquiring the remaining interests.

Very respectfully,
Wm. E. Colby,
President

∴

THE GREATER SEQUOIA

Recent Facts Point to Middle California as the Future Summer Home of Many Thousands of Campers Out

Growing public interest in the plan of the Department of the Interior for the enlargement of the Sequoia National Park undoubtedly had much to do with last summer's enormous increase in the patronage of this fascinating reservation on the west slopes of the Sierra Nevada Mountains in central California. This increase amounted to more than seventy-two per cent of the attendance the year before; and last year's attendance, be it noted, was an increase of forty per cent over the figures of the exposition year preceding. That these two enormous increases cover the precise period since the plan for "the Greater Sequoia" was made public is at least significant.

Last summer's increase consisted largely of campers in and near the Giant Forest. Many of them remained for weeks, some all summer, much to the profit of the local business channels through which they purchased their supplies.

The Sequoia is fast becoming the greatest camping out locality in the country, and if the magnificent groves of the present Sequoia Park are supplemented by the immense scenic valleys it is proposed to add to the park, valleys now unknown to the public, there will be drawn to the park many thousands of campers yearly from far distant States.

∴

A SIERRA CLUB FUND FOR THE RELIEF OF STARVING CHILDREN

A growing feeling among many of our members that we as a club should undertake some form of service induced the San Francisco local walks committee to start a weekly collection on the Sunday walks as a nucleus for a war-relief fund. Contributions to the Holland Seaside Fund, which provides for the health rehabilitation of starving children from Belgium and northern France, would seem to be a particularly appropriate work for our club members. To be of the greatest value our contributions should be made regularly, so that each month we could undertake the support of a certain number of children. For instance, fifty members paying five cents apiece each week would provide for the permanent care of two children. Though most of us can afford to give more than this, even the nickels and the pennies count.

The movement was started on the San Francisco local walk of January 13, and the response was very generous. Less than forty members were out, but, nevertheless, over six dollars were contributed. On January 20 we received over five dollars.

While it is particularly fitting that we who enjoy our weekly outings should pass along some of the benefits we derive from them to helpless, war-stricken children, we hope that other members will feel impelled to make small but frequent contributions to this fund. Mr. Fred R. Parker has consented to take charge of it, and all contributions should be sent to or left at the clubrooms in his name.

NATIONAL PARK NOTES

The National Park Service

The National Park Service was organized as the ninth bureau of the Department of the Interior immediately upon the approval of the deficiency appropriation act of April 17, 1917, which made funds available for its establishment. To quote from the act, the functions of the new service are to:

> . . . promote and regulate the use of the Federal areas known as national parks, monuments and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The officers of the new service are: Director, Stephen T. Mather of Illinois; assistant director, Horace M. Albright of California; chief clerk, Frank W. Griffith of New York. Seventeen national parks and twenty-two national monuments are now under the jurisdiction of the National Park Service. In acreage the national parks total 6,254,568 acres; the national monuments, 91,824 acres.

Before quoting from the extensive and admirable "Report" for 1917 made to the Secretary of the Interior by Horace M. Albright, acting director, we would like to call the attention of our members to the scope and difficulty of the task that has confronted Mr. Albright this year. A serious and prolonged illness of Mr. Mather's threw the whole burden of organization and management upon Mr. Albright's shoulders, at a time, too, when every executive department and every branch of Government service was concentrated upon the war. In expressing our great happiness in Mr. Mather's recovery and return to the work into which he has put so much thought and energy, we wish also to congratulate him upon his assistant, and to hope that they may continue to work together in the park service through many administrations yet to come.

⁂

Report of the Director of the National Park Service, 1917

TRAVEL

The total travel to the National Parks for the season was 487,368. . . . I shall not comment upon the national monument travel further than to state that it has materially increased. . . . The enormous increase in National Park patronage does not represent merely an increase in local travel; that is, travel from various park States and immediately adjacent territory. It represents an increase in both local travel and in patronage of tourists from distant States and foreign countries. The tourist traffic of the railroads possibly did not increase, but it is not probable that it decreased appreciably. Many of the railroads enjoyed an increased tourist patronage. Private automobile traffic increased tremendously in every park. . . .

Our travel reports also disclose an astounding increase in what we choose to call park-to-park travel. Hundreds of parties during the past summer visited more than one National Park; just how many it is impossible, of course, to ascertain, and scores visited groups of parks, such as the parks in the Rocky Mountains, the Pacific Coast parks, the northwestern parks, the southwestern members of the system, etc. . . .

Many pages might be written on the automobile routes to the various national parks and the accommodations that have been provided for the traveler along the way. . . . The efforts of the automobile clubs, highway associations, and other organizations to accurately and completely sign the roads, leading over mountain and plain, are worthy of extended comment, and the projects of the State highway commissions, involving extension and improvement of road systems, are closely related to the subject of motoring in the parks, and I regret sincerely that they can not be outlined here. Briefly, I may state that the highways in National Park States have been greatly improved during the past year. . . .

The National Parks Highway Association, with headquarters in Spokane, has this year assumed the leadership in this movement, and during the spring mapped and sign-posted a route from its terminus of last year in Mount Rainier National Park to Crater Lake, thus connecting Yellowstone, Glacier, Mount Rainier, and Crater Lake National Parks by what is known as the National Parks highway. In connection with the latest link added to this important system the beautiful Columbia River highway has been marked as a side trip, and I believe that all of the parties that have traveled over the National Parks highway this year have not overlooked the opportunity to see the wonderful scenery of the Columbia River gorge. This park-to-park highway should now be extended and marked in California, Arizona, Utah, New Mexico, Colorado, and Wyoming and the circuit completed. When the work of designation has been accomplished all interested in the development of travel to the National Parks can join hands in securing the improvement of the highway. In more than one sense this road will become a national asset. . . .

Conditions for motoring in the parks themselves during the 1917 season were most favorable. With one possible exception the park highway systems were in better condition than ever before. Every effort was made to safeguard travel on the roads. When automobile traffic was particularly heavy, extra traffic rangers were assigned to regulate the movement of cars, and all traffic on dangerous grades was carefully checked to eliminate all possibility of accident. Free automobile camp service in several of the National Parks was extended during the summer, and it shall be our policy to make still further additions to and improvements in this service. These free camps are specially cleared areas, provided with water, and are located at convenient distances from supplies of fuel. Where shelter for cars is needed, buildings for this purpose are erected. Toilet facilities are provided, and the installation of grates for cooking purposes is proceeding rapidly. . . .

APPROPRIATIONS AND REVENUES

It is unquestionably the policy of Congress to appropriate an amount equal to the park revenues for park purposes in addition to funds for new construction work and general maintenance of improvements. Under ordinary circumstances, the park that is well developed will yield a large revenue, but, on the other hand, a park that is not developed can not possibly yield revenue of consequence. . . .

The remarkable increase in National Park travel has naturally increased park revenues materially. At this date it is too early to compile the complete tables of revenues for this season, but we are already aware of the fact that the parks will yield a larger revenue this year than ever before. And the revenues will grow larger each year, even though it may appear advisable later to revise some of the fee schedules downward, thus reducing auto taxes and rates for service in the parks affected. Each year several schedules require adjustment. I believe the time will soon come when Yellowstone, Yosemite, Mount Rainier, Sequoia, and General Grant National Parks, and probably one or two more members of the system will yield sufficient revenue to cover costs of administration and maintenance of improvements. An appropriation for extension of improvements and new construction work will be all that these parks will require. There probably never will be a time when all of the parks will not require appropriations over and above the revenues for one purpose or another, and it would not be proper and just to require these great national playgrounds to yield sufficient revenue to cover all the costs of operation, any more than it would be fair and reasonable to expect Rock Creek Park, in Washington, to pay all costs of its operation as a public recreational area. It seems that the National Parks and the Federal Government that controls them must jointly provide the necessary funds for their administration, protection, and improvement after the Federal Government has advanced their development to a point where they can yield revenue without placing a burden upon the tourist. . . . The appropriation for the current fiscal year for the park system is $524,780; for the monuments, $5000. The revenues for the 1918 fiscal year already reported are $132,675.87. A comparison of the appropriations of the fiscal years 1917 and 1918 with those of preceding years will indicate clearly that Congress is heartily in sympathy with the development of tourist travel to the parks and is ready to cooperate by making both the parks and the monuments fully accessible. The appropriations that are now being made for many parks, however, are inadequate, and no funds whatsoever were made available for the following National Parks recently established: Hawaii National Park in the Territory of Hawaii, Lassen Volcanic Park in California, Mount McKinley National Park in the Territory of Alaska. . . .

THE ROCKY MOUNTAIN NATIONAL PARK

The Rocky Mountain National Park enjoyed a larger tourist patronage during the 1917 season than any other National Park. The organic act creating this park contained the following inhibition on appropriations for its protection, improvement, and maintenance:

> *Provided,* That no appropriation for the maintenance, supervision, or improvement of said park in excess of $10,000 annually shall be made unless the same shall have first been expressly authorized by law.

On account of this provision no more than $10,000 a year has been available, and as this amount has been just about sufficient to properly protect the park,it has been impossible to undertake any improvement project. The fact is, the appropriation of $10,000 is barely sufficient for protective purposes now. The act of February 14, 1917, added to the park the region mentioned above as the Estes Park area, the Twin Sister Mountains, and other territory, in all 25,265 acres, thus increasing the area to be protected to 254,327 acres, and adding problems of traffic control, camp supervision, sanitation, and a multitude of other similar problems requiring an increase in the ranger force and the assumption of other financial obligations. There was no part of the appropriation available for improvement purposes this year, and yet the obligation remained to care for all visitors to the region. Our records show that prior to October 12, 117,186 visitors entered the park boundaries. . . .

YELLOWSTONE NATIONAL PARK

The reorganization of the concession system of the park was the most important accomplishment of the year. There had been numerous corporations and individuals engaged in furnishing transportation service, hotel and camp accommodations, photographic supplies, etc., and many of them had for years rendered indifferent service to the public. . . . There naturally followed constant friction among so many groups of concessioners. This was particularly true of the transportation companies. Many of the concessions in the park were operated in an uneconomical manner, and the cost of this inefficiency in management was borne by the traveling public, not in the form of exorbitant charges for service, but in unsatisfactory and insufficient service. . . .

The department finally concluded to grant a single transportation concession. The grounds upon which this decision were based were:

First. Because it would be uneconomical to permit the establishment of more than one transportation line on the Yellowstone roads with each touching the same point, just as it would be uneconomical to run more than one street-car line on a single street; also because each would require a separate management, a separate overhead expense account, and a separate operating supply base; likewise because there would necessarily be duplication in the establishment of garages, gasoline stations, etc.

Second. Because more than one line would be difficult to control by the park authorities, as questions of right of way on the roads would constantly arise for adjustment; and because there would be friction at railroad terminals, hotels, and other starting points in the handling of passengers.

Third. Because with more than one competing transportation system the tourist would be subjected to importunities and harassment at railroad terminals by rival solicitors, chauffeurs, and information clerks; and because the economic waste involved in the operation of the several systems would increase the cost of park tours.

Fourth. Because the investment required to establish a satisfactory transportation line in Yellowstone Park, with necessary operating bases, supply stations and garages, would be very large, and it would be doubtful if more than one line could be operated at a profit.

Having determined the principles that would guide the motorization of the transportation service, reorganization of all of the important concessions was necessary before the new transportation concession could be granted. This was finally accomplished by mutual agreement between the various transportation, permanent-camp, and hotel interests. A money consideration accomplished the elimination of one transportation company and the motor line operated from Cody, Wyoming. An adjustment of property interests and another cash consideration passing to a party that wished to withdraw from the camping business made possible the abandonment of the transportation features of the permanent camping business and the combination of the two important permanent camping companies. The third camping company was denied a renewal of its franchise.

When the reorganization reached the stage where there remained but one hotel company, one transportation company, and two camping companies that had disposed of their transportation privileges and combined their other property interests with the consent of the department, the policy of permitting the establishment of a single hotel enterprise, a single permanent camping business, and a single motor transportation line, as three Government-regulated public-utility monopolies, was adopted.

GLACIER NATIONAL PARK

The outstanding features of the Glacier National Park season are: First, the vast improvement in the road and trail system that has been effected under congressional appropriations; second, the increase in tourist patronage; third, the growth in popularity of the park as a summer resort, as evidenced by the return for another season of a large number of visitors of previous years and a substantial increase in the average length of time spent in the park by its visitors. . . .

The appropriation available for the last fiscal year was $110,000; for the current fiscal year, $115,000. With these funds it has been possible to improve the road systems on both sides of the park. The system on the east side has been largely rebuilt. The crossings of the river bottoms and lowlands have been filled to a sufficient depth to lift the road out of the mud and water in stormy weather. Bridges and culverts have been constructed, curves have been eliminated, grades realigned, and many miles of the system have received a graveled surface. . . .

The extensive trail system has also been improved and several miles of new trails have been constructed. The important new trail connecting Glacier Hotel on Lake McDonald with Granite Park Chalet was completed during the season. The construction of a new trail connecting Granite Park Chalet with Sun Camp, via Logan Pass, and a connecting trail to the Glacier Hotel, was begun and will be finished next summer. Several other important new trails will be completed this autumn. Many new foot trails leading from the various hotels and chalets to scenic points in their immediate vicinity were built and made available for use this year. The most important of these trails lead from the Granite Park Chalet to points where thrilling vistas of the finest mountain scenery may be obtained. One of them proceeds for a considerable distance (two and one-half miles to Gould Mountain) along the Garden Wall on the very crest of the Continental Divide, and from it one may step directly onto the Grinnell Glacier, one of the safest and most interesting glaciers of the park. It is proposed to continue this trail along the Garden Wall for several miles. . . .

MOUNT RAINIER NATIONAL PARK

Striking improvements in Mount Rainier Park are in evidence all around the mountain. First in importance is the fine new hotel in Paradise Valley. Next may be mentioned the picturesque new camp at the snout of the Nisqually Glacier. A new hotel has been built on the patented land at Longmire Springs, and this alienated tract has been cleaned up and improved in a manner that makes it impossible to recognize the old Longmire property. This hotel does not have as many facilities for accommodating guests as the National Park Inn across the road on Government land possesses, but it is a comfortable hostelry. . . .

The National Park Service has concentrated its improvement work entirely upon the road and trail system during the past year. Under an appropriation of $75,000, the largest ever made by Congress for this park, the entire road system, including the Storbo road, has been improved. The road from the southwestern gateway to Nisqually Glacier has been widened, graded, and surfaced, several new bridges have been constructed, and new culverts installed. The road beyond the glacier to Narada Falls and Paradise Valley has been somewhat widened, curves have been eliminated, parapets have been constructed, and the road throughout its length graveled and made entirely safe for automobile traffic. . . . The trail system around the mountain has been much improved during the year. Miscellaneous construction work, including the erection of a residence for the supervisor at the southwestern or Nisqually River gateway, was accomplished. . . .

CRATER LAKE NATIONAL PARK

Wild animals are becoming more numerous in the park, and it was observed this summer that a very few wild flowers are returning. There have been no wild flowers in the park since it was established, the sheep that ranged over this region before the creation of the park having utterly destroyed the wild-flower growth.

SEQUOIA AND GENERAL GRANT NATIONAL PARKS

The most important work accomplished in Sequoia National Park during the past year has been the assumption of control of the Giant Forest lands by the National Park Service and the preparation of these lands for the use of the traveling public, especially the camper and angler. . . . During the past season the park enjoyed an astonishing increase in patronage. The largest increase was in the number of people visiting the park in private automobiles. . . . The road which is just being extended to the Marble Fork River should be continued in the next year or two to the north boundary of the park, where connection may be made with the road which Tulare County is now building to connect the General Grant Park with the Sequoia Park. I inspected the county road during the past summer, and found that an excellent highway is being constructed between the two parks. The road traverses a scenic region, and the engineers who are building the highway are disturbing natural conditions as little as possible. When this county road and the Federal connection in Sequoia Park are completed, the circle route through the two National Parks will afford one of the most interesting scenic trips of the National Park system. Few park roads will enjoy a larger patronage than this new road because every party that goes into either General Grant or Sequoia Park will visit both before leaving this scenic region. I cannot too strongly recommend the continuance of the Government road work in order that the two National Parks may be connected by the automobile highway as soon as possible.

Summarizing travel to the Sequoia Park for the 1917 season, there were 18,510 visitors to the park as against 10,780 last year; 2334 automobiles this year as against 736 last. The revenues for the year were higher than ever before, $10,326.60, as against $5,169.86 for 1916.

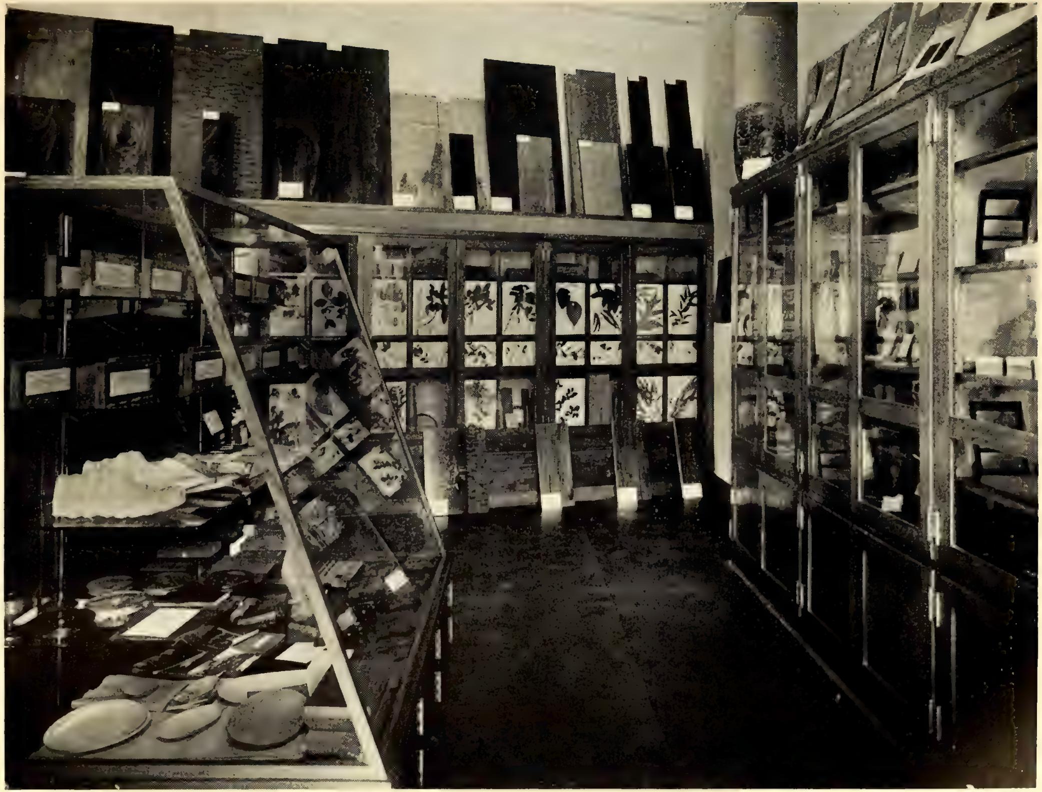
Travel to the General Grant National Park this year is 17,390, as against 15,360 last year. Automobile travel was also heavier, 2158 cars having entered the park as against 1778 last year.

YOSEMITE NATIONAL PARK

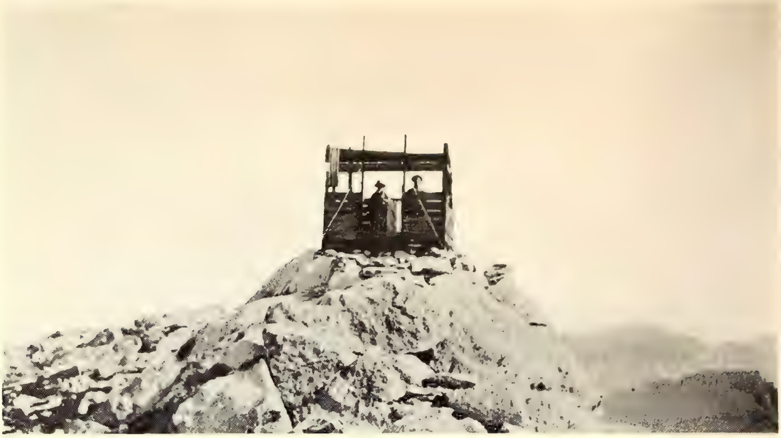
The following Yosemite Park notes are quoted from the report of the supervisor, Mr. W. B. Lewis. If space permitted we should quote still

---

[Crater Lake National Park was created in 1902. Fifteen years of protection have not sufficed to bring back the flowers.—Editor's note.]

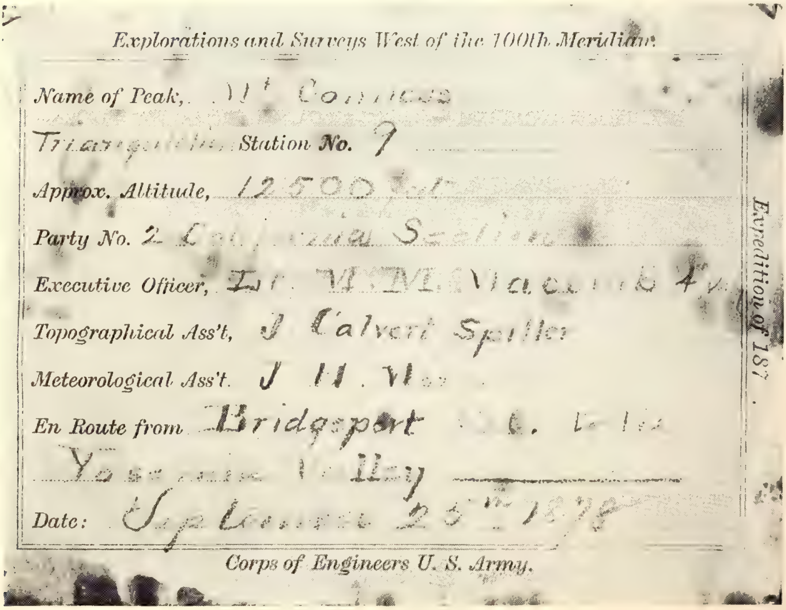


A CORNER OF THE WOOD TECHNOLOGY LABORATORY, DIVISION OF FORESTRY, UNIVERSITY OF CALIFORNIA



REMAINS OF THE COAST & GEODETIC SURVEY'S OBSERVATORY
On the summit of Mount Conness
Photo by Walter L. Huber

PLATE CCXIX.



Explorations and Surveys West of the 100th Meridian.

Name of Peak, Mt Conness
Triangulation *Station No.* 7
Approx. Altitude, 12500 [illegible]
Party No. 2 California Section
Executive Officer, Lt. M. M. Macomb [illegible]
Topographical Ass't, J. Calvert Spiller
Meteorological Ass't. J. H. W[illegible]
En Route from Bridgeport [illegible]
Yosemite Valley
Date: September 25th 1878

Expedition of 187 .

Corps of Engineers U. S. Army.

RECORD OF ASCENT OF MOUNT CONNESS
Left by Lieutenant M. M. Macomber, September 25, 1878. Removed from the mountain by Walter L. Huber, July 24, 1917; now deposited in the official records of the Sierra Club

more fully, as Mr. Lewis has made a very complete résumé of the work accomplished in this park and of its needs for the future. We call particular attention to his fearless stand upon the grazing question.

ROADS AND TRAILS

During the fiscal year 1917 the service maintained approximately 104 miles of road, as follows: Floor of Yosemite Valley, 22 miles; El Portal road, 8 miles; Big Oak Flat road, 13 miles; Wawona road, 4 miles; roads in Mariposa Grove of Big Trees, 10 miles; and Tioga road, 47 miles. As indicated in former reports, all of these roads, with the exception of a few miles on the floor of Yosemite Valley, are dirt roads which were originally built as wagon roads and which have been gradually improved until reasonably safe for automobile travel. All of these roads, however, are built on heavy grades and with sharp, dangerous curves, and the roadbeds themselves vary from 10 to 15 feet in width. The result is that automobiles, especially those of lighter construction, travel these roads only with considerable difficulty and with a considerable element of danger. That these conditions exist is unfortunate, and every effort should be made to take up the work of their improvement in order that automobilists may travel these roads with safety and with greater degree of ease and comfort.

It is a well-known fact that for the best interest of the park as a whole disproportionate publicity has been given to the waterfalls and other features of Yosemite Valley, with the result that travel to other portions of the park has been minimized. Although it is realized that Yosemite Valley itself will always be the most important feature of the park, both because of its accessibility and because of its many features of attraction for the recreationist, and as it is also realized that the bulk of moneys expended in development work in the park should be expended in and around Yosemite Valley where it will be of the most good to the most people, it is, however, important that a certain amount of development work be done in the outlying portions in order to attract visitors and thereby make known to the public something more of the opportunities for campers and outdoor people in those areas.

During the past year a trail was built from the White Cascades down the Tuolumne River to a point near the top of the first Water Wheel Fall. This has resulted in a large increase in the number of visitors to the Water Wheel Falls during the past year. In order, however, to completely accomplish the object for which the trail was started, namely, that of reaching all of the Water Wheel Falls, it is necessary that the trail be continued some two miles down the cañon to Return Creek, a tributary of the Tuolumne River. With this trail completed the Water Wheel Falls country would be easily accessible by horseback, and the trail would be extended to a point from where at some future time, should travel warrant it, it could be extended down the entire Tuolumne Cañon to Hetch Hetchy. This latter proposition is not one for consideration at this time, but should be given consideration in connection with plans for the future development of the trail system. On July 1, 1917, funds were made available for the construction of a new trail, some eight miles in length, between the McClure Fork of the Merced River and Tuolumne Pass, by way of Babcock and Emeric lakes. The completion of this trail will shorten the distance between Merced Lake and the Tuolumne Soda Springs by some three or four miles, and will eliminate that portion of the present trail which passes over Vogelsang Pass and which, because of its high elevation, is late to open, dangerous, and extremely hard to maintain in a passable condition.

PATENTED LANDS

During the past year an important step has been taken toward acquisition by the Government of privately owned lands within the park. During the year exchanges of land and timber were effected with the Yosemite Lumber Co. by which the Government acquires title to nearly 7000 acres of land and 150 acres of timber only. Of this total amount, 790 acres include the timber and were acquired for purposes of protecting roads within the park. The remaining lands are either cut-over lands or lands upon which reservation of the timber has been made. In addition to this, an exchange was effected with the city and county of San Francisco whereby the Government acquires title to 360 acres of land in the vicinity of Hog Ranch. In each case, in return for such titles, the Government has granted timber rights on lands in localities where the loss of the timber will not in any way affect the scenic feature of the park. By these two exchanges the Government has acquired nearly 40 per cent of the privately owned lands in the park. Privately owned lands in the park still exist to the extent of about 11,000 acres, but in view of the fact that the Government has no accessible timber which could be disposed of without affecting the scenic features of the park, it will be impossible to acquire further private holdings by this method of exchange. The problem, therefore, of securing funds for the purchase of such lands is one that should be given consideration and attention. . . .

VISITORS

Visitors to the park during the period October 1, 1916, to September 30, 1917, reached a total of 34,510. The fact that the majority entered the park in private automobiles, and the further fact that the number of people so entering was far in excess of the number traveling by this method during the previous year, is evidence that it is this class of travel that must be given the bulk of consideration in future park development work, both on the part of the Government and the concessioners operating within the park. Roads and public parking places must be given special consideration by the service, and garage facilities and hotel and camp accommodations which appeal to this class of travel must be maintained by the concessioners. . . . The total number of automobile visitors utilizing the free public camps during the season of 1917 was 10,598. This compares with 4038 for the season of 1916. . . .

GRAZING

Shortly after the declaration of war in April, 1917, with its accompanying propaganda on the conservation of food supplies, the question of opening the park to grazing was taken up on a large scale. All possible influence was brought to bear by the stockmen operating in the regions around the park. Their arguments in favor of such action by the service were based upon the alleged shortage of feed in the foothills and their alleged patriotic desire to do all possible in assisting in carrying out the policy of conservation of food supplies. Although there was no objection on the part of this office to opening certain areas of the park during the period of emergency, it was evident, however, that upon neither of these principles was based the real reason for the insistence on the part of the stockmen that the park be opened; but, rather, it was evident that advantage was taken of the emergency to open up the question with the hope of getting a permanent footing on the park lands, feeling that the acquisition of permits for this year would strengthen the claim for similar privileges in years to come.

When, in 1891, the park was created, grazing was already established throughout the area without Government regulation or authorization. It took more than 20 years of constant effort to eliminate it, and it was only by the rigorous application of force and more or less arbitrary ruling by the Army that the task was accomplished, and in the end the park lost several hundred square miles of territory through the readjustment of its boundaries. Even then the fight was continued on a small scale, with the result that in 1913 permission was given to certain persons to allow cattle to graze upon the park lands when being driven from one private holding to another, or from the park boundary to private holdings. This privilege was given contingent upon action by Congress on certain bills pending at that time, the object of which was the purchase by the Government of private holdings within the park. Although this legislation was never passed, these individuals have assumed these privileges to be sufficient authorization for the continuation of grazing over some 40,000 acres of park lands in the western portion of the park up until the present time. It is very evident that none other than these few individuals have benefited by the use of these lands. It might also be pertinent to state that in any arrangement the service may make permitting grazing on this portion of the park, these men and no one else will reap the benefit.

In view of the strong demands made the service saw fit to open certain portions of the park to grazing, and during the spring of 1917 permits were issued for the grazing of some 5000 head of cattle. The bulk of the area upon which grazing was allowed lies in the western and northwestern portion of the park, north and south of the Tuolumne River. In addition to this a small area in the southeastern portion of the park was opened to grazing.

When this question comes up another year, as it undoubtedly will, I would suggest that grazing be allowed within the park on private lands only, and on these under fence. In case it should appear necessary to continue grazing of larger areas, because of the necessity of war conditions, I would suggest that the rate for this service be increased to not less than $5 per head, in order that the Government may get its share of the benefit rather than to allow practically all to go to the few individuals holding permits, as is the case under the present arrangement, whereby the Government charges the sum of 50 cents per head per season. . . .

. . .

SUPERVISORS OF NATIONAL PARKS

For information regarding our National Parks write to

Casa Grande Ruin, James P. Bates, Custodian, Florence, Ariz.
Crater Lake, Alex. Sparrow, Crater Lake, Oregon.
Glacier, George E. Goodwin, Acting Sup., Belton, Montana.
Hot Springs Reservation, Dr. Wm. P. Parks, Sup., Hot Springs, Ark.
Mesa Verde, Thomas Rickner, Sup., Mancos, Colo.
Mount Rainier, D. L. Reaburn, Ashford, Wash.
Platt, R. A. Sneed, Sup., Sulphur, Okla.
Rocky Mountain, L. C. Way, Ranger in Charge, Estes Park, Colo.
Sequoia and General Grant, Walter Fry, Sup., Three Rivers, Cal.
Sully's Hill, Samuel A. M. Young, Acting Sup., Fort Totten, N. Dak.
Wind Cave, Thomas W. Brazell, Sup., Wind Cave, via Hot Springs, S. Dak.
Yellowstone, Chester A. Lindsley, Acting Sup., Yellowstone Park, Wyo.
Yosemite, W. B. Lewis, Sup., Yosemite, Cal.

FORESTRY NOTES

By Walter Mulford

❦

War

War! Only these three letters are needed to spell what has chiefly occupied the minds and hearts of most of the forestry folk of California during the past field season. The stars and stripes have called thousands of men to cut timber from the French forests for the trenches, the railroads and the camps of the American expeditionary forces. The same stars and stripes have demanded the services of tens of thousands of men in the American forests to supply lumber for vehicles, aeroplanes, boats, cantonments, and boxes and crates in which to ship food, ammunition and army supplies. Our flag has required the services of scientific experts in determining the best woods to meet the demands raised by the war, and the best methods of treating these timbers. It has asked each remaining member of the greatly depleted forestry organizations to put his regular work on one shoulder and to balance the load on the other shoulder by assuming the duties of a brother who has been called away.

The result in California: the logging camps and sawmill crews are straining every nerve to make the forests contribute their just share of the nation's need for raw materials, but they are utterly unable to meet the demands made upon them; the Forest Service has been handicapped in handling a severe fire season because of the loss of men, and at the same time it has had to meet the demands made by increased stock grazing, more timber sales and much war work of other kinds; almost all the forestry students and part of the forestry faculty at the University of California have joined the colors.

War! It is unpleasant to intrude the all-pervading word into the journal of the Sierra Club, the club which helps people to get away from strife. But the fact is that the peaceful forests of California, almost on the opposite side of the world from where the struggling lines are drawn taut, are themselves feeling the shock to some extent. More timber is being cut, less help is at hand for controlling fires, more cattle and sheep are being grazed, less money and labor are available for building trails, bridges and telephones. War! May the vigorous Sequoia, with a thousand years of useful life yet to come, never again hear the word as a thing of reality!

⁖

War Work of the Forest Service

The California members of the United States Forest Service have taken their full share of war work. Coert Du Bois, district forester, and many members of his staff are serving in various branches of the army. Last spring the Forest Service made a quick survey of the points in the California forests the destruction of which would benefit an enemy. Maps of these localities were prepared and furnished to the War Department. In the dangerous first weeks of the war the Forest Service coöperated in the protection of these properties, and no loss occurred. A military census of all members of the Forest Service was prepared, thus helping to place each man where he could be most useful. Soon after war was declared a survey made by the College of Agriculture of the University of California showed that the forage and feed crops of the State were only 65 per cent of the normal. Immediately the Forest Service engaged in far-reaching and painstaking work to make every acre of forage on the national forests fully available for the production of beef, mutton, leather and wool. The result was that on June 1 there were 23,000 more cattle and 71,000 more sheep on the national forest ranges of California than there had been in any previous year. The Forest Service took a large part in the draft registration under the selective draft act throughout the mountain sections of twenty-two counties. The Forest Service has also actively coöperated in many ways with the Committee on Resources and Food Supply of the State Council of Defence.

∴

A Contribution to Recreation

During the summer of 1917 four hundred thousand people entered the Angeles National Forest for recreational purposes. Three cheers for the Angeles, and three more for the multitudes who have the good sense to use it! During the past year the Forest Service built sixty miles of new trail on the Angeles, and it expects to build fifty miles during the coming year. The Southern California Section of the Sierra Club contributed one hundred dollars toward the reconstruction of the old Buckhorn Trail, now renamed by the Forest Service as "Sierra Club Trail." There are now twelve hundred miles of trail within the forest, and it is expected that by the summer of 1918 there will be signboards at every trail intersection. Approximately one thousand summer residence permits are outstanding on the Angeles. Because of the existence within the forest of two of the largest game refuges in the State, deer are increasing rapidly.

∴

Tahoe-Yosemite Trail

During the 1917 field season the Forest Service completed the Tahoe-Yosemite trail from Upper Echo Lake to the lower end of Echo Lake. This brings the trail out to the Lincoln Highway. The work was done in coöperation with the Western States Gas and Electric Co., which furnished most of the labor. The trail built in 1917 is standard and of the same general description as that built in 1916, which is described in the SIERRA CLUB BULLETIN of January, 1917.

⁂

NEW RECREATION MAPS

During the past year the Forest Service has issued new recreation maps of the Angeles, California, Cleveland, Inyo and Mono National Forests, and a highway map of California showing the National forests. These can be obtained free from the District Forester, U. S. Forest Service, 114 Sansome Street, San Francisco.

⁂

THE LUMBER INDUSTRY IN CALIFORNIA

"Probably the most important point of contact between the pine lumber industry in California and the Government in the present crisis is the manufacture of box shooks. California is so situated that many of its food products are marketed thousands of miles away from where they are produced. In most cases wooden boxes are essential for proper transportation. The National Food Administration is urging the most complete utilization of food products, and the lumber industry is being called upon to produce the box shooks. 1918 presents a problem that cannot be fully appreciated at the present time—the volume of crop production, demands upon the industry for men for the army, labor unrest, supply of cars for shipment, cost of raw materials and many other factors." (Comment by C. Stowell Smith.)

In spite of labor shortage, the cut of California timber was apparently greater in 1917 than in 1916. Taking seven mills in the pine region as an example, the season's cut in 1916 up to September 1 was 259 million board feet; in 1917, up to September 1, it was 270 million.

The Diamond Match Company has recently undertaken to cut its timber conservatively in order to keep its lands productive for future operations. Only trees above a certain diameter are cut, the smaller trees being left to grow to larger sizes; all merchantable timber is utilized well into the tops; the slashings are systematically burned after the first heavy rains and all dead snags on the logged lands are felled. A timber cruise of about 170,000 acres of timberland in Butte and Tehama counties, owned by this company, was completed last summer by the company's forest adviser, Frederick E. Olmsted.

Several lumbermen owning timber in the Sierra made strong efforts during the past summer to induce the Federal Government to make large appropriations for controlling the ravages of pine beetles.

⁂

CALIFORNIA WHITE AND SUGAR PINE MANUFACTURERS' ASSOCIATION

An important step in the development of the lumber industry of California was taken on July 1, 1917, when the scope of the California

White and Sugar Pine Manufacturers' Association was greatly enlarged and C. Stowell Smith was appointed secretary-manager. Mr. Smith was formerly in charge of the branch of forest products in the San Francisco office of the Forest Service. The Association, which was formed on May 15, 1916, now includes twenty-two pine lumber manufacturers.

There is great potential significance for the future of California forests in the formation of a strong lumbermen's organization such as this. Under unscrupulous management, it could be a powerful agent for unnecessary forest destruction. In good hands it can be one of the most effective of agents for perpetuating forests by proper use. Such an association increases the opportunity for the effective execution of a "get-together" policy between the lumbermen, the stockmen, the United States Forest Service, the United States National Park Service, the State Forester's office, the Sierra Club and all other agencies having vital interests in California's forests.

At present the association is concentrating most of its effort on one important point—the standardizing of the grades of soft pine lumber, which is a benefit to the consumer of lumber as well as to the producer. A book of rules describing the grades has been published and widely distributed to both manufacturers and consumers, and a traveling force of inspectors is employed.

The association is directly helping the government in the organization of forestry troops, having been authorized to select officers for the Twentieth Reserve Engineers (Forest) and to enlist privates for that regiment. Up to November 1, about 1000 men from the Pacific Coast had been selected, of which about 800 are from California. Orders have been issued to increase the regiment by about 6000 additional men.

⁂

THE DIVISION OF FORESTRY OF THE UNIVERSITY OF CALIFORNIA

In July, 1917, the Division of Forestry of the University of California moved into the newly completed Hilgard Hall, and thereby took its place among the well equipped forest schools of the country. The building houses seven divisions of the College of Agriculture. The forestry quarters include a classroom, a large general laboratory for all undergraduate courses, three special research laboratories for forest utilization and wood technology, three small special laboratories for advanced students in other branches of forestry, a large logging engineering laboratory, drafting room, blue print room, instrument room, herbarium room, lecture demonstration materials room, store room, club room and six offices.

The students of the Forestry Club of the University of California have issued seven numbers (May to November, 1917, inclusive) of a new magazine, "California Forestry." Its aim is "to unify the forest interests of the West." As American war plans developed, all the members of the editorial and managerial staff joined the colors. An entirely new second staff was then chosen. Not only this entire second staff, but also, with a single exception, every other forestry student at Berkeley above the sophomore year joined the army. It was therefore necessary to suspend publication.

∴

FOREST INDUSTRY COMMITTEE

An encouraging sign of the increasing desire of the various California forestry interests to pull together for the good of all is seen in the recent formation of a Forest Industry Committee. The members are: G. M. Homans, State Forester, chairman; Roy Headley, Acting District Forester, representing the United States Forest Service; R. E. Danaher, president of the R. E. Danaher Pine Co., representing the lumberman's viewpoint; C. Stowell Smith, secretary-manager of the California White and Sugar Pine Manufacturers' Association; and Woodbridge Metcalf, representing the Division of Forestry of the University of California. The committee was formed on October 13, 1917, at a forestry meeting at the new quarters of the Division of Forestry at Berkeley, which were being formally dedicated on that day. The committee holds regular monthly meetings. Originally planned to assist in meeting the fire situation in the forests, the grain fields and the grazing ranges, the scope of the activities was at once widened as indicated in the name "Forest Industry Committee."

∴

FOREST FIRES

A forest fire bill again failed to become law at the 1917 session of the California legislature. In 1915 two forest fire bills were presented to the legislature. At a loss to choose between them, the two committees of the legislature to whom the bills were referred requested Henry S. Graves, chief forester of the United States Forest Service, to outline a bill for them. Mr. Graves was in California at the time and, although hard pressed by other duties, he devoted a week to study of the problem and the drafting of definite suggestions. The committees then drafted a bill following Mr. Graves' suggestions. The bill passed the legislature, but was vetoed by the governor. In 1917 the bill which had passed in 1915 was again introduced, with a few modifications, and passed the legislature with almost no discussion. It was again vetoed by the governor. In fire protection outside the national forests and national parks, California is sadly behind her sister States with equal interests at stake, and it is to be hoped that a fire bill fairly satisfactory to all parties can become law in 1919.

The summer of 1917 was the worst fire season in California since 1910. It is estimated that there were about 1500 fires reported on the California National Forests during the summer, of which about 150 were severe. About 15,000 to 18,000 acres of timberland were burned over (this does not include brush land). The two largest fires were on the Santa Barbara National Forest in June, burning over 48,000 acres of brush land, and destroying human life, farm buildings, orchards and cattle. Lightning was responsible for about 500 of the fires.

In the Pacific Northwest during the 1917 season, 7688 forest fires were reported. In that region about $1,825,000 were spent for fire prevention and fighting in 1917 by the lumbermen, the Government and other agents.

The California Forest Protective Association conducted a publicity campaign in April, 1917, against forest, field and brush fires.

∴

TAMALPAIS FIRE ASSOCIATION

The Tamalpais Fire Association, which controlled matters connected with fire prevention on and about Mt. Tamalpais from 1914 to 1917, turned over its work to the recently formed Marin Municipal Water District in March, 1917.

∴

FORESTRY IN THE COMMONWEALTH CLUB

The Commonwealth Club of California has recently organized a Committee on Forestry and Wild Life. Everyone who would like to work on this committee is requested to write to the secretary, Commonwealth Club, 153 Kearny Street, San Francisco.

BOOK REVIEWS

Edited by MARION RANDALL PARSONS

◆

"THE CRUISE OF THE CORWIN"* In the summer of 1881 Mr. Muir accompanied his friend, Captain Calvin Hooper, on a long Arctic cruise in search of the *Jeannette* and Captain De Long's exploring party. Captain De Long had sailed into the Arctic in the summer of 1879, and grave fears were entertained for his safety. As a matter of fact, at the very time that the *Corwin* was beginning her search the *Jeannette* sank, crushed in the ice, a thousand miles to northwestward. Her captain and twenty of her men never returned. The *Corwin* was also searching for traces of two missing whaling ships. Coasting along the Siberian and Alaskan shores, making enquiry at all the Chukchi and Esquimo villages, gave Mr. Muir a wonderful opportunity to study the glaciation and plant life of the Arctic. The young Mr. Nelson, whose enthusiastic pursuit of birds and "other game"—such as the dead natives in the cemeteries and the "ivory spears, arrows, stone hammers . . . which formed the least ghastly of his spoils"—so amused Mr. Muir, is now the director of the U. S. Biological Survey.

The book is based upon a series of letters written during the cruise for the San Francisco "Bulletin." Certain passages from his journal containing material omitted from the letters have been included in chronological order to complete the record. Mr. Muir's valuable and interesting report on the "Glaciation of the Arctic and Subartic regions visited during the cruise," and his "Botanical Notes," published in 1883 as a part of Treasury Document No. 429, likewise have been included in an appendix. The botanical report on the flora of Herald Island and Wrangell Land, says the editor, "still remains, after thirty-six years, the only one ever made on the vegetation of these remote Arctic regions." The editor's work throughout is admirable. An interesting introduction completes the story of the *Jeannette*, and gives a brief account of subsequent exploration in that region.

The narrative of the voyage dwells not alone on the features which were Mr. Muir's especial object of study, but on the characters and customs of the natives as well. The voyage was not without its danger. More than once they risked being crushed by the ice, narrowly escaping, indeed, the fate of the lost *Jeannette*. Mr. Muir was a member of the first party ever to land on the ice-bound shores of Wrangell Land. He also made the first ascent of Herald Island. "The midnight hour," he says, "I spent alone on the highest summit—one of the most impressive hours of my life. The deepest silence seemed to press down on all the vast, immeasurable virgin landscape. The sun near the horizon reddened the edges of belted cloud-bars near the base of the sky, and the jagged ice-boulders crowded together over the frozen ocean stretching indefinitely northward . . . it was to the far north that I ever found myself turning, to where the ice met the sky." Written in the full flush of a new and absorbing experience, this book has a bright, spontaneous charm that, coupled with the almost universal appeal of Arctic exploration, is sure to make it a favorite.

---

* *The Cruise of the Corwin.* Journal of the Arctic Expedition of 1881 in search of De Long and the Jeannette. By JOHN MUIR. Edited by WILLIAM FREDERIC BADÈ. Illustrated with photographs and sketches by MR. MUIR. Houghton Mifflin Company, Boston and New York. 1917. Pages, 272. Price, $2.50.

M. R. P.

⁂

"TWO SUMMERS IN THE ICE WILDS OF EASTERN KARAKORAM"*

To stand where the foot of man has never trod, particularly at this period of the earth's history, is an inspiring and memorable experience. It does not happen as often as some writers would have us think. Many a lesser explorer, believing himself the first ever to penetrate a region, has come upon some such record of human occupation as the cairn of rocks found by Mrs. Workman high up on the Rose Glacier. But to Dr. Hunter Workman and Mrs. Bullock Workman the conquest of virgin peaks of almost incredible height and the exploration of great glaciers is already an old story, as readers of their earlier writings know. The present volume describes two expeditions during the summer of 1911 and 1912, including explorations of the Hushe and Kondus Glacier Systems of the Eastern Karakoram in Kashmir. The story of the first summer, told by Dr. Workman, confines itself largely to the scientific aspects of their discoveries. Mrs. Workman's narrative of the 1912 journey, on the other hand, has a more lively tone, richer in human incident. The story of months-long camping above 16,000 feet in altitude; of the first ascents of peaks 21,000 feet high; of caravan troubles with coolies, such as the pilfering of supplies and wanton extravagance with precious wood; of the two lives claimed by the glacier—all is told with vigor and a fine sense of values. Mrs. Workman was the originator and leader of the second expedition. Dr. Workman was "photographer and glacialist"; and with them also went Mr. Grant Peterkin, surveyor, and Sarjan Singh, a native plane-tabler. Three guides, Cyprian Savoye, Quazier Simeon, and Rey Adolf, and two porters, Rey Julian and Chenoz Cèsare, who later lost his life in a crevasse of the Bilaphond Glacier, were also a part of the expedition. The third part of the book is made up of discussions of the physiographical features of the Bilaphond, Siachen (Rose) and Kaberi basins and glaciers by Dr. Workman. The illustrations throughout the book are very numerous and of exceptional beauty. The "geographical re-

---

Two Summers in the Ice Wilds of Eastern Karakoram. The Exploration of Nineteen Hundred Square Miles of Mountain and Glacier. By FANNY BULLOCK WORKMAN and WILLIAM HUNTER WORKMAN. With three maps and one hundred and forty-one illustrations by the authors. E. P. Dutton & Company, New York. Pages,296. Price, $8.00.

sults of this expedition" are partially summed up by Mrs. Workman as follows: "About 850 square miles of mountain territory were mapped with plane table. Forty or more peaks were measured in different ways, many by triangulation, by Mr. Grant Peterkin. The Rose Glacier was first explored from end to end, and surveyed to its tongue in the Nubra Valley. The north and east Siachen sources . . . were discovered and first visited, and the relation of the Eastern Karakoram and Indus watershed to that of Chinese Turkestan at these points established. . . . A new group of high snow peaks was discovered beyond the east Rose wall on the Turkestan side. The King George V group was first seen and identified as such, and its three highest peaks triangulated. A new pass, 18,700 feet, was discovered and crossed and a first descent made from it to the head of the twenty-mile-long Kaberi Glacier, which was followed down its whole length to its tongue.

M. R. P.

⁂

"Voyages on the Yukon"*

The "Call of the Wild" leaves an unpleasant taste. It raises the question: How strong a force is civilization? Must a new country be not only a place of hardship, but also one of crime and lawlessness? Fortunately our "story-book writers" have not the last word, and I agree with Hudson Stuck that Jack London has not left any "literary memorial" of the great stampede to Alaska, and that but one side of that period has been presented in his much read book. Hudson Stuck's book, "Voyages on the Yukon and its Tributaries," is more valuable to the reader who desires to know Alaska than a cartload of extravagant and highly-colored stories. It is a sane, well-balanced account of travel in the interior of Alaska. Climatic, topographic and sociological conditions as well as historical notes are covered in an interesting way. In contrast with the author's "Ten Thousand Miles with a Dog-sled," the book deals with summer travel, and this is synonymous with river travel. Part I is an account of the Yukon from the upper headwaters to St. Michael and the Bering Sea. Part II describes the Porcupine, the Chandalar, the Tanana, the Koyukuk, the Innoka and the Iditarod rivers and the Changeluk Slough. One must not expect a scientific and exhaustive treatise, for Stuck writes in a cursory and easy style and sees more with the eye of an ordinary observer than that of a scientist. For the general reader interested in travel, for the business man who wishes to understand the general conditions of life in and the future possibilities of Alaska, and for the sociologist who is interested in primitive conditions, I heartily recommend the book.

George J. Young

---

* *Voyages on the Yukon and its Tributaries.* By Hudson Stuck. Charles Scribner's Sons. Price, $4.50 net.

"ON THE HEADWATERS OF PEACE RIVER"* An unusually interesting narrative of a thousand mile canoe trip through one of the most remote and unexplored regions of British Columbia—"beyond the farthest camping ground and the last tin can." Leaving the railroad at Prince George, on the Fraser River, Mr. Haworth, with Joe Lavoie, his canoeman, for his sole companion, paddled as far as Giscome Portage, where their outfit was carried over the low divide to Arctic waters. At Summit Lake the long canoe journey really began—down the Crooked River to McLeod Lake, and down the Pack River to the Porcupine, whose junction with the Finlay forms the mighty Peace. As far as Fort Grahame on the Finlay, and for some miles beyond, the voyage was along traveled ways, as travel goes through the "immensity of that mighty mountain mass called British Columbia"—Indians, trappers, prospectors and Hudson's Bay Company men, occasionally a big game hunter or a party of scientists. The headwaters of the Finlay, however, are practically unexplored, and on some of its tributaries, notably the Quadacha, Mr. Haworth and Joe undertook long "backpack" trips, climbing mountains and noting great ranges and glaciers as yet unmapped. On the return journey they proceeded down the Peace in their canoe as far as Hudson's Hope, where they took a gasoline boat to Peace River Landing and the railroad. The narrative is told with spirit and many touches of human interest. The hunting experiences are plentiful enough to add zest, but do not usurp too much space. The whole book has the stamp of sincerity and shows a deep love of wilderness life, the more so, perhaps, that Mr. Haworth does not hesitate to record his moments of disillusionment when he longs for "hotels and ladies and electric lights." Many of us have known such moments. He leaves with us, however, a vivid impression of those memorable days when he "climbed beyond the barrier ranges and looked upon a world that was new."

M. R. P.

⁂

"REPORT OF THE DIRECTOR OF THE NATIONAL PARK SERVICE"† In our National Park Notes we have quoted extensively from this admirable report, but it contains so much that is of interest to our members that it should be mentioned here also. The maps, showing railroad routes, automobile roads, trails, improvements and accommodations, make it an extremely valuable guidebook for travelers afoot, horseback, or motoring. A copy is on file in the Sierra Club rooms. We have not been informed whether the report can be obtained from the Superintendent of Public Documents. M. R. P.

---

* *On the Headwaters of Peace River.* A Narrative of a Thousand Mile Canoe Trip. By PAUL LELAND HAWORTH. Charles Scribner's Sons, New York. 1917. Price, $4.00 net. Illustrated.

† *Report of the Director of the National Park Service to the Secretary of the Interior for the year ended June 30, 1917.* Government Printing Office, Washington, D. C. 1917.

"Green Trails and Upland Pastures"*

What a book for the shut-in, for the war-wearied or war-wounded mortal! Here is a real and living bit of New England spread out before our western eyes; a country commonplace and unpretentious to us westerners, used as we are to the great inland valleys, the endless expanses of desert and the sky-piercing mountains of our Pacific Coast. It takes a Walter Prichard Eaton to disclose the charm of the Berkshires, and a Walter King Stone to picture it for us. Ordinary hill pastures take on dainty beauties of form, color and vista under Eaton's loving gaze. Paddling a canoe down a little stream is fraught with all the wonders and mysteries of a trip up the Amazon. Even though only a few yards from a well-traveled road, you are utterly alone in a beautiful world, flower-fringed, tree-shaded. No gardener can equal a river, Eaton tells us. It understands the art of border, draping its banks with "wild grape-vines, a little feathery clematis and great masses of wild balsam, apple . . . The current is the gardener who keeps the edge in line, the beautiful sweeping line of the bend."

Rivers have their fascination, but so too do the stone walls on the New England country. These "artless hedgerows" in Eaton's glowing phrase "march in feathery beauty between a thousand fields, up hill and down, bright at their base with mulleins and milk-weed, with roses and goldenrod, harboring chipmunks within the old wall which is their spine, and white-throats flitting in their branches."

Flashes of lightsome humor liven Eaton's simple conversational style. Occasionally, however, its grace and humor is marred by self-consciousness. He pleads guilty to dropping into the fallacy of personifying nature, and discourses on his lapse at such length that we feel the tiresomeness of the discussion a greater sin than the original; for the chief commandment to an author is "Thou shalt not bore."

Only once does Eaton leave his beloved home country. Then he suddenly transports us to Glacier National Park. Here, as we would expect, his spirit expands and soars to meet the awe-inspiring beauty of the Rockies. Perhaps it was from this visit to the national parks of the West that Eaton received his inspiration as to the future for his beloved but neglected New England hills. Back of his love for them one feels all the time the question: What is to become of all this neglected country; these outworn farms, abandoned hamlets and villages? Country roads and canals are too distant to help open up this country again, the railroads have passed so far off that they are of no use. All the energetic and younger people have gone to the cities; it is not likely they will return. No, we can not look for a return of the vigor of pioneer days in these lonely hills; but why not convert this country into a playground for the people teeming in the cities of the Atlantic Coast? Why not make a great national forest out of the Berkshires? Many, I suppose, will shake their heads over the practical difficulties of such a scheme, but who knows? The dreams of today are often the deeds of tomorrow.

---

* *Green Trails and Upland Pastures.* By Walter Prichard Eaton. Doubleday, Page & Co. 1917. Price, $1.60 net.

FLORENCE E. ATKINSON

⁂

"LIGHTS AT DAWN"* One evening during the outing of 1912, at a Sierra Club campfire near the foot of Mount Whitney, a young Greek student stood up and described his experiences of the preceding night, spent at the summit of the loftiest mountain in the country. Those who heard Aristides Phoutrides that evening will remember his enthusiasm and his glowing words as he described the colors of the sunset. They will also recall that he told of singing "America," inspired by the grandeur of the scene before him. The experiences of that night on the mountain top made a deep impression on Phoutrides, for they stirred the two dominant emotions of his life—a passionate love of the harmonies of nature, and an ardent patriotism.

Anyone knowing Phoutrides would expect poems from him. His joy in the splendors of natural scenery is very real, impelling him to expression in song. His patriotism is of that fine type that looks for its inspiration not to any particular place or people, but to the spirit of freedom and liberty. Thus it is quite natural to find in his "Lights at Dawn" verses reflecting now the brightness of the California Sierra, now the soft color of the mountains of Greece, poems inspired by the triumph of liberty in the new Greece and the promise of America.

The poems cannot be rightly understood without some idea of the writer's experience. It is hard to believe that they were written by one who came to America only ten or twelve years ago, a stranger from an old-world country, with but a few words of English at his command. Born in the island of Icaria, near Samos, in the Ægean Sea, under Turkish sovereignty, Aristides Evangelus Phoutrides was Greek by race and spirit. His mother and sister did much for his early education before he attended the gymnasium and university at Athens. Later he studied in Cairo, and about 1906 came to America to continue his studies. After a year learning the English language and American ways, he entered Harvard College, and in 1911 was graduated "summa cum laude." He continued at the university, receiving the degree of Master of Arts and teaching in the department of the classics. In 1913 he was made a Travelling Fellow of Harvard University, going to Berlin and other German cities for research work and later to Italy and Greece. He returned to Cambridge after the outbreak of the European war and received the degree of Doctor of Philosophy in 1915. It was during the period of his graduate studies at Harvard that he spent a summer vacation in California and joined the Sierra Club outing in the Kern.

Last summer Phoutrides gave up his studies and his teaching and entered the officers' training camp at Plattsburg to prepare for whatever service he might be able to render in the world struggle for freedom and democracy.

---

* *Lights at Dawn. Poems.* By ARISTIDES E. PHOUTRIDES. The Stratford Co., Boston, 1917. Price, $1.25.

F. P. F.

⁂

"YOUR NATIONAL PARKS"* No such comprehensive work on national parks has yet been given to the public as this latest book by Mr. Mills. In it the traveler will find information concerning all of the national parks and monuments of the United States and Canada. The more important parks, such as Yellowstone and Yosemite, are described in detail—their topography and geological formation, their flowers, forests and wild animals, and interesting incidents in the history of their discovery and exploration as well. In addition the book contains valuable chapters on "Park Development and New Parks," "Wild Life in National Parks" and "National Parks, the School of Nature." In "The Spirit of the Forest," "In All Weathers," "The Trail," and in the preface Mr. Mills gives freer rein to the more imaginative style that we have come to regard as his own. An appendix by Laurence Schmeckebier containing definite information about routes and prices, and other statistical tables regarding national parks, adds greatly to the value of what is no doubt destined to become one of the most popular books on this subject.

M. R. P.

⁂

"THROUGH THE YEAR WITH THOREAU"† No more charming book has come to our attention this season than this sympathetic study by our fellow mountaineer, Herbert W. Gleason. What John Muir is to a Californian, Henry Thoreau is to a New Englander. Mr. Gleason is an adopted Californian, it is true, but his deepest feeling, undoubtedly, is for the "architecture of the snow," the "beauty of wild apples," the "waving rye-fields" and "old, unfrequented roads" of Thoreau's country. An introduction, all too short, and interesting notes are contributed by Mr. Gleason, besides the very beautiful and artistic photographs that carry us through the seasons with Thoreau. The subjects of the quotations and pictures range from flowers and birds to cobweb drapery, early morning fogs and icicle "organ pipes." Long and patient study and infinite love must have gone into the making of such a book. Such a picture, for instance, as the "orientation of young pine shoots" is not easily come by.

M. R. P.

---

* *Your National Parks.* A Guide to the National Parks. By ENOS A. MILLS. With detailed information for tourists by Laurence F. Schmeckebier, and with illustrations and maps. Houghton Mifflin Company, Boston and New York. 1917. Pages, 532. Price, $2.50 net.

† *Through the Year with Thoreau.* Sketches of nature from the writings of Henry D. Thoreau with corresponding photographic illustrations. By HERBERT W. GLEASON. Houghton Mifflin Company, Boston and New York. 1917. Price, $3.00 net.

"THE BIRD STUDY BOOK"* Mr. Pearson has written a book of general interest. He presupposes no knowledge of birds or of zoology; nor does he attempt to identify species. His problem is to treat the bird branch of our population in such a way that we shall become conscious of their existence, their rights, their value to their human neighbors, and their sufferings; and he also describes the methods which are being employed to protect them from destruction.

After describing the life of birds at different seasons of the year, he gives a resumé of the work which has been done in Economic Ornithology, especially by the Biological Survey. When one realizes that injurious insects cause an annual loss of $60,000,000 to the cotton crop in the United States, of $53,000,000 to hay, $2,000,000 to cereals, and 25 per cent to the crop of the market gardens, one understands why the protection of birds has become a national problem.

The Audubon Association, of which Mr. Pearson is secretary, is the Bird's Red Cross Society, working for the relief of the wild feathered population of our country. Largely through the efforts of the Audubon Society workers, all but eight of the States have adopted the Audubon law protecting non-game birds. The Federal Migratory Bird Law, beside protecting game birds, completed this campaign of the Audubon Society by protecting song and insect-eating birds at all times, thus extending the work into States which had not adopted the Audubon law. And in 1916, a treaty with Canada covering the provisions of the Migratory Bird Law was ratified by Congress. In addition to this protective legislation, the nation has set aside seventy bird reservations, and the Audubon Society protects about 500,000 breeding water birds and twenty heron colonies.

A campaign of education is being carried on systematically through the medium of the schools. Junior Audubon societies now number almost 600,000 members, and these members are being taught to know and to protect the birds.

AMELIA S. ALLEN

∴

"MOUNT RAINIER"† Probably no other single mountain in the United States is so worthy of having a volume devoted to it as Mount Rainier. Not alone for its beauty does it stand supreme, but because around it centers so much of the early history of the Northwest. In this very interesting volume it is the historical side that Professor Meany has made paramount. In gathering together the personal narratives of the explorers and climbers he has given the book much greater value than in merely chronicling their attempts. Particularly vivid is the story of the "First Attempted Ascent," by Lieutenant A. V. Kautz.

---

* *The Bird Study Book.* By T. GILBERT PEARSON, secretary National Association of Audubon Societies. Illustrated with pen and ink drawings by Will Simmons, and sixteen photographs. Doubleday, Page & Company, 1917. Price $1.25 net.

† *Mount Rainier.* A Record of Exploration. Edited by EDMOND S. MEANY. The Macmillan Company, New York. 1916. Pages, 325. Price, $2.50.

Chapters on the glaciers, the rocks, the flora and the place names and elevations add to the scientific value of a book that every lover of the mountain should own.

M. R. P.

. . .

"CANADA, THE SPELLBINDER"* In this book Lilian Whiting, best known for her books on Italy and a certain type of religious mysticism, enters a literary field in which she is less at home. The title is somewhat misleading, for one would expect to find a more comprehensive description of Canada's scenic resources than is here presented. But for the most part she writes only of the long strip of Canada which she has seen from the car windows of the Grand Trunk Railway System. "Railroad literature" is not to be condemned by its name, though usually it is of a somewhat hectic character. Miss Whiting has done her task well, and has put into the pages of her book much information about the urban populations and industrial aspects of Canada not ordinarily found in books of this character. Her literary interests come to expression in a chapter on "Canadian Poets and Poetry." There is an excellent folding map of Canada and numerous photographic illustrations, especially of the Mount Robson country. One who proposes to cross Canada on the Grand Trunk Railroad will find this book an entertaining guide.

W. F. B.

. . .

"GLACIER NATIONAL PARK"† The publishers announce this book as the "first comprehensively descriptive guide to the recently opened Rocky Mountain wonderland." But one who intends to visit Glacier National Park must not let this appraisal prevent him from taking along also the pamphlet entitled "General Information Regarding Glacier National Park," issued by the Department of the Interior in 1914, which is a gem of condensed facts. Equally indispensable remains Marius R. Campbell's "Origin of the Scenic Features of the Glacier National Park," published by the same department. The book we are now discussing appears under the joint authorship of Mathilde Edith Holtz and Katharine Isabel Bemis. One could wish that the style were a bit less exclamatory in places, but the reader will find in it entertaining information about the hotels, trails, lakes, glaciers, and wild flowers of the park, and even something about Blackfeet Indian legends and names. A topographic map of the park is conveniently printed on the inside of the front and back covers and the fly-leaves, and there are twenty excellent photographic illustrations. The book is to be recommended to any one who is planning a trip to Glacier National Park. The preface quotes John Muir's advice, "Give a month at least to this precious reserve. The time will not be taken from your life. Instead of shortening, it will indefinitely lengthen it and make truly immortal."

---

* *Canada, the Spellbinder.* By LILIAN WHITING. E. P. Dutton & Company, New York, 1917. With many illustrations in color and monotone. Price, $2.50 net.

† *Glacier National Park, its Trails and Treasures.* By KATHARINE BEMIS and MATHILDE HOLTZ. George H. Doran Company, New York, 1917. 263 pages, octavo. Illustrated. Price, $2.00 net.

W. F. B.

. . .

"CANOEING AND SAILING"* This is a book for boys written by Warren H. Miller, editor of *Field and Stream*. It contains excellent directions for the building of boats, for the sailing of the batteau, sail dory, duckboat and skiff, and for the handling of catboats and knockabouts. Part II is devoted to canoeing and cruising, with a full discussion of canoe fittings. Part III discusses motor boat management and construction in the following chapters: Choosing Your Motor Boat, Motor Boat Fittings, Cabin and Interior Furnishings, Yacht Plumbing, All About Your Engine, The Galley of the Power Cruiser, Going Into Commission, Hauling Out for the Winter, and Building a Power Cruiser from Knockdown Frames. There is a long list of illustrations which helps out admirably the directions contained in the text. It is an excellent book to place in the hands of boys with a love of the water and a mechanical turn of mind. The construction does not call for expensive materials.

W. F. B.

. . .

"CAMPING AND WOODCRAFT"† The second volume of this manual of outdoors has for its aim instruction in the craft that enables one to be independent of equipment and to gain self reliance. We quote a few of the chapter headings to give some idea of the scope and usefulness of the book. "Getting Lost," "Pathfinding," "Nature's Guide Posts," "Trips Afoot," "Packs for Pedestrians," "Concentrated Foods," "Living Off the Country," "Accidents and Emergencies."

M. R. P.

. . .

"IN CANADA'S WONDERFUL NORTHLAND"‡ *In Canada's Wonderful Northland*, by W. Tees Curran and H. A. Calkins, is a book with a purpose which is best expressed in the last paragraph of the introduction by Mr. Curran himself, "It is hoped that some of the readers of the following chapters may catch the spirit of conquest that actuated their ancestors in raising the American continent to its position in the world today, and assist in opening up this great treasure house,

---

***The Boys' Book of Canoeing and Sailing.* By WARREN H. MILLER. George H. Doran Company, New York, 1917. Illustrated. Price, $1.25 net.

† *Camping and Woodcraft.* A Handbook for Vacation Campers and for Travelers in the Wilderness. By HORACE KEPHART. Vol. II, Woodcraft. Outing Publishing Company, New York. 1917. Price, $1.50 net.

‡ *In Canada's Wonderful Northland.* By W. TEES CURRAN and H. A. CALKINS. Price, $2.50.

the heritage of the Canadian people." The book is a narrative of an expedition made in the summer and autumn of 1912, under the supervision of the authors, for the purpose of continuing investigations begun in 1907 of the natural resources of the territory of New Quebec. The party, consisting of twenty-one people, traveled by canoe and motorboat from Missinaibi by river and then along the coast of Hudson Bay to Clarke Island and return. "The season of 1912," as Mr. Curran says, "was conceded to be the worst in fifty years," hence much of the book is a description of difficulties thus occasioned.

The book is clearly written and gives a detailed description of the country and especially of the accommodations afforded to travelers. It would be valuable to anyone planning a similar expedition of exploration.

DAISYMAY HUBER

∴

"THE AVIATOR AND THE WEATHER BUREAU"* This little book by our esteemed fellow member, Dr. Ford Ashman Carpenter, is a timely contribution to a very timely subject. There are four chapters under the following headings: The Signal Corps Aviation School at San Diego, Applied Meteorology for the Aviator, Weather Observations from an Airplane, Investigating the Upper Air. Dr. Carpenter went aloft himself in an airplane to become "personally acquainted with some of the conditions that confront aviators," and he tells his experiences and observations in an interesting manner. The account of the sounding balloons liberated at Avalon, California, for the investigation of the upper air is particularly interesting. One of them, carrying a meteorograph, went up 32,643 meters or twenty miles and a half. We commend this little book to all who are interested in the wonders of the air and the art of aviation.

W. F. B.

∴

"THE BOYS' BOOK OF HUNTING AND FISHING"† This is a practical book on out-of-door sports intended primarily for boys, but useful as well to any beginner. The author describes in detail the equipment necessary for, and the methods of handling the principal game fish of the Eastern streams. There follows the section on shooting, both with shotgun and rifle. A considerable portion of the book is devoted to camping methods, such as the selection of a camping place, erection of tents or shelters, camp cooking and travel. The book is principally adapted to camping in the eastern or northeastern woods, and not to the high mountain wilderness of the West.

J. N. LE C.

---

* *The Aviator and the Weather Bureau.* By FORD A. CARPENTER, LL.D., Meteorologist. Published by the San Diego Chamber of Commerce, 1917. Illustrated with photographs and charts by the author and others.

† *The Boys' Book of Hunting and Fishing.* Practical camping-out, game-fishing and wing-shooting. By WARREN H. MILLER, editor of "Field and Stream." Geo. H. Doran Co., New York. 290 pages. Price, $1.25.

“WOODCRAFT FOR WOMEN”[*] A very complete description of the outfit and methods of camping useful to women. Two chapters are devoted to clothing and accessories; the remainder to packing, camp making and cooking. The book deals entirely with conditions present in the Eastern forest region.

J. N. LE C.

⁂

“TOURING AFOOT”[†] An excellent treatise of the methods of traveling through the wilderness where reliance must be placed entirely on what the traveler can carry on his back. The author first describes the general precautions to be taken in starting on such an expedition, and then takes up in order the important items, such as packs and packing, footwear, cruising, shelters, bedding, cooking outfit, and rations. The information is adaptable to all kinds of forest as well as mountain work. Those of the Sierra Club who anticipate packing, or as we call them “knapsack” trips, will do well to consult this book.

J. N. LE C.

⁂

“TROUT LORE”[‡] A very technical account of the methods used to lure the wiley trout from the stream to the frying-pan. The author speaks first of the different species and varieties of trout, in fact devotes a chapter to its natural history. He then takes up in detail the different methods of trout fishing and the different types of tackle to be used. The book is intended for those with some experience in trout fishing, not for the beginner.

J. N. LE C.

⁂

“THE BOOK OF CAMPING”[‖] The contents of this handy little book are: “Preparing to Go Camping,” “How and Where to Camp,” “Camp Housekeeping,” “How to Trap and Why,” “Emergency Hints.”

M. R. P.

---

[*] *Woodcraft for Women.* By KATHRENE G. PINKERTON. Outing Handbook No. 41. The Outing Publishing Co., New York. 174 pages. Price, 80 cents.

[†] *Touring Afoot.* By DR. C. P. FORDYCE. Outing Handbook No. 52. The Outing Publishing Co., New York. 166 pages. Price, 80 cents.

[‡] *Trout Lore.* By O. W. SMITH, angling editor of “Outdoor Life.” With twenty-four illustrations from photographs by the author. Frederick A. Stokes Co. New York. 200 pages. Price, $2.00.

[‖] *The Book of Camping.* By A. HYALL VERRILL. Illustrated. Alfred A. Knoff, New York. 1917. Price, $1.00 net.

⁂

The books above reviewed were furnished by the Bureau of the Associated Mountaineering Clubs of America.

219 Powell Street San Francisco, Cal.

* * *

PILLSBURY'S
PICTURES
Inc.

KODAKS FILMS FINISHING

Large Collection of California Views

* * *

When in Yosemite we invite you to visit our branch
Studio, where you will find much of interest
Our prices same as city prices

ON A HIKE—*You Will Need*

A Kodak IT WILL SERVE YOU FOR DELIGHTFUL RECOLLECTIONS OF EVERY TRIP

A Pedometer WILL INSTANTLY TELL YOU HOW FAR YOU HAVE WALKED

A Field Glass WILL DOUBLE THE PLEASURE OF THE HIKE

We Also Do Developing and Printing
THE QUALITY KIND—FOR THE ONE WHO KNOWS

GEO. H. KAHN
Optician & Photo Supplies
34 Kearny Street SAN FRANCISCO

The
Ellery Arms
Company
583-85 MARKET ST
SAN FRANCISCO, CAL
THE SIGN OF QUALITY

The "Been There"

Outing Goods Store

Devoted exclusively to the needs of sportsmen and sportswomen—with 37 years of progressive camp experience to assist

OUR SUITS ARE IN EXCLUSIVE STYLES
Fashioned with "character" from standard government grade khaki to the famous auto woolen—appropriate, practical and fairly priced

ELLERY HIKING BOOTS GIVE GENUINE COMFORT
They also are of our own creation, possessing leather, shape and construction which have made them "standard" to the royalty of the trail

LEARN WHAT ELLERY QUALITY, SERVICE AND PRICE MEANS
Impossible to enumerate the hundreds of seasonable articles that cannot be bought elsewhere, so we invite your inspection, with the reminder that attention to detail has made our establishment

The Largest Outing Supply House in America

☞ Complete outing goods catalogue sent free on request ☜

Ellery-Made
MEANS QUALITY

PRINTED BY TAYLOR & TAYLOR, SAN FRANCISCO

SIERRA CLUB BULLETIN

VOLUME TEN

SIERRA CLUB
MDCCCXCII

NUMBER FOUR

SAN FRANCISCO
JANUARY
1919

Smithsonian Institution
MAY 2 1919
National Museum.

PUBLICATIONS OF THE SIERRA CLUB
NUMBER FIFTY-FOUR

SIERRA CLUB BULLETIN
FOUNDED 1892

Edited for the Club by
WILLIAM FREDERIC BADÈ

JANUARY, 1919

VOL. X CONTENTS No. 4

Plate CCXX. Grove Karl Gilbert — *Frontispiece*

GROVE KARL GILBERT, THE MAN — *C. Hart Merriam* 391
Plates CCXXI, CCXXII

GROVE KARL GILBERT: AN APPRECIATION — *Joseph Barrell* 397

PROFESSOR JOE — *D. S. Richardson* 400

SOME SIERRAN CHIPMUNKS — *Harry S. Swarth* 401
With notes on Photography of Small Mammals by Joseph Dixon
Plates CCXXIII, CCXXIV, CCXXV, CCXXVI

STUDIES IN THE SIERRA — *John Muir* 414
V. POST-GLACIAL DENUDATION
Plates CCXXVII, CCXXVIII, CCXXIX, CCXXX

ORGANIZATION OF THE SIERRA CLUB 429

EDITORIALS 430
Plates CCXXXI, CCXXXII, CCXXXIII, CCXXXIV

REPORTS OF COMMITTEES 435

NOTES AND CORRESPONDENCE 438
Plates CCXXXV, CCXXXVI, CCXXXVII, CCXXXVIII

SIERRA CLUB HONOR ROLL 447

WAR SERVICE LETTERS 450
Plates CCXXXIX, CCXL

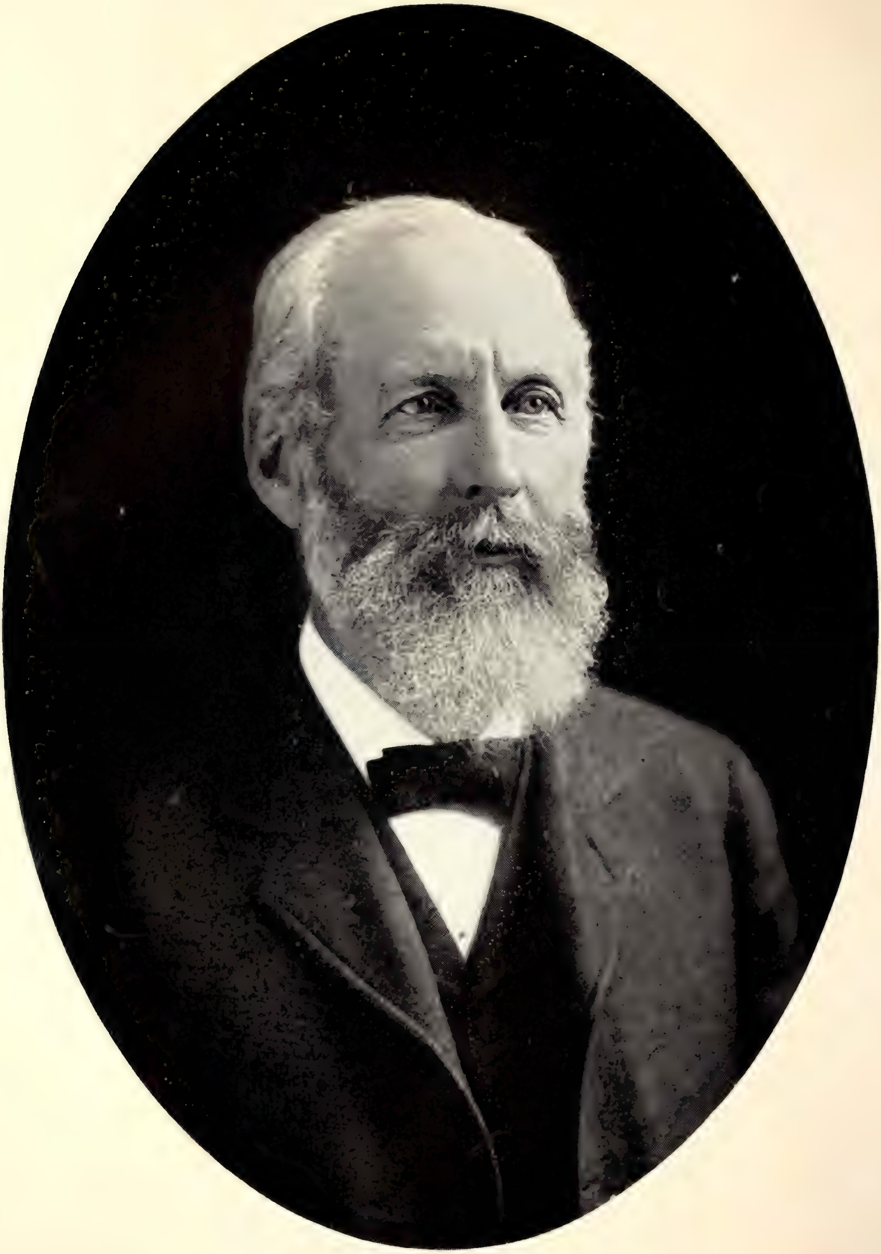
NATIONAL PARK NOTES 476

FORESTRY NOTES 483
Plates CCXLI, CCXLII

BOOK REVIEWS 487

Correspondence concerning the distribution and sale of the publications of the Club with reference to advertising rates and space location, and concerning its business generally, should be addressed to the Secretary of the Sierra Club, Room 402 Mills Building, San Francisco, California.

PRICE, 50 CENTS PER COPY



GROVE KARL GILBERT
1843-1918

SIERRA CLUB BULLETIN

VOLUME TEN
NUMBER FOUR

SAN FRANCISCO
JANUARY
1919

Smithsonian Institution
MAY 2 191
National Museum

GROVE KARL GILBERT, THE MAN[*]

By C. Hart Merriam

We are gathered here this evening to pay tribute to the memory of a colleague and friend—a man whose studies were models of thoroughness, whose presentation of results in the diverse fields of geology, geography, physiography, biology, ethnology, astronomy, physics, and mathematics, models of clearness and accuracy of expression.

Gilbert's college course was only the beginning of his education, for throughout his lifetime he was continually referring to dictionaries, encyclopedias and other books of reference—his habit of mind demanding precise knowledge on an incredible number and diversity of subjects.[†]

In the discussion of problems it was his habit to recite the facts, sometimes adding what seemed to his analytical mind the natural inference and conclusion, sometimes suggesting more than one explanation, but without reiteration or argument; for having once made his statement, he regarded repetition unnecessary and he was strongly disinclined to engage in controversy.

---

[*] Read at Memorial meeting of Geological Society of Washington, January 22, 1919.

Dr. Gilbert was for many years a member of the Sierra Club and contributed articles on geological features of the Sierra to the Club Bulletin. (Vol. V, pp. 20, 211 and 279; Vol. VI, p. 225.) We first knew him intimately on the 1903 outing of the Club to Kern River Cañon and Mt. Whitney. There he gave evidence of his big-hearted, genial qualities and introduced the younger members of the party to new games and stories about the campfire. His youthful spirit at once endeared himself in the hearts of all.—*The Editors.*

[†] In this connection it may not be amiss to record the fact that the few books he kept close at hand were mainly Greek, Latin, French, German, and English dictionaries; British and American enclyclopedias, and technical works on geology, astronomy, and mathematics.

He was unconventional, impartial, industrious, averse to exaggeration, and possessed of exceptional evenness and serenity of temper. He was a man of few words, just and kindly in criticism, avoiding provocation both in the giving and in the taking, in all things calm and imperturbable.

As a lecturer he was clear, precise, and naturally inclined toward the technical. This he himself realized, and he used to enjoy telling about his first public talk, which was on the geological subject "Erosion." He thought he had adapted it to the needs of a non-technical audience, and was chagrined to find that it went entirely over their heads. So on the first opportunity he repeated it, under the title "Mud," and this time succeeded in awakening enthusiastic interest.

While able to devote the greater part of the most active period of his life to field-work and the study of problems arising therefrom, his work nevertheless suffered a serious interruption due to the assumption of administrative labors, to which, from a sense of duty and much against his inclination, he gave his principal energies for eight long years (1884-1892).* Referring to one of his unfinished investigations, he said: "It is hardly necessary for me to assure you that my personal regret in abandoning this research at its present stage is very great."† But the depth of the sacrifice necessary in giving up research work, to a man of his keenness of intellect, clearness of vision, and logic of deduction, equipped by nature, inclination, and training for the solution of difficult problems, may be more easily imagined than expressed. The extent of the resulting loss to science can only be conjectured.

It is not for me to speak of his resourcefulness, versatility, and diverse accomplishments, of his skill in making sketches, photographs, and diagrams for the better illustration of the subject in hand, of his quick grasp of the meaning of natural phenomena, of his vigor and enthusiasm in the field, or of his humor and good fellowship at the campfire. But if a personal digression may be permitted, I would like to refer briefly to a trip we enjoyed together in the High Sierra in the summer of 1903, in the course of which he pointed out a multitude of features of geological significance and glacial sculpture that had escaped my observation during previous field-work in the region; while reciprocally I was able to bring to his attention certain habits of the rock coney and of a rare animal of the genus *Aplodontia,* that greatly excited his interest.

---

*It was the distaste for office-work and dread of abandoning research work that later led him to decline the offer of the high position of Director of the Survey.

†Inculcation of Scientific Method by Example. *Am. Journ. Sci.*, 3d Ser., Vol. XXXI, pp. 284-299, 1886.

From the towering summit of Mt. Conness, reached at 8:30 in the morning after a cold night in our sleeping-bags among the timber-line mats of dwarf white-bark pine high up on the mountain side, we enjoyed a prospect of singular glory. The atmosphere was unusually clear, the smoke-haze of the lower country having not yet arisen. We looked out upon a broken sea of cold gray granite whose peaks, domes, and ridges stretched from the Matterhorn to Mt. Galen Clark, and from the splendid ramparts of Tenaya and Yosemite to the lofty crowns of Lyell and Ritter; while to the east, though the waters of Mono Lake were hidden by the crest of the Sierra, the magnificent chain of volcanic cones known as Mono Craters was in full view, and beyond, in the far distance, arose the lofty Desert Ranges of Nevada. It was an inspiring picture—one that rekindled Gilbert's youthful enthusiasm and tempted him to remain; but the rising wind, making the descent dangerous, forced a retreat before the morning was half spent.

Gilbert's description of another scene, though in a remote part of the west, is so to the point—so appreciative, so full of feeling, so suggestive of the man and of the emotions he must have had when standing on the summit of Conness—that its introduction here seems most fitting. It runs thus:

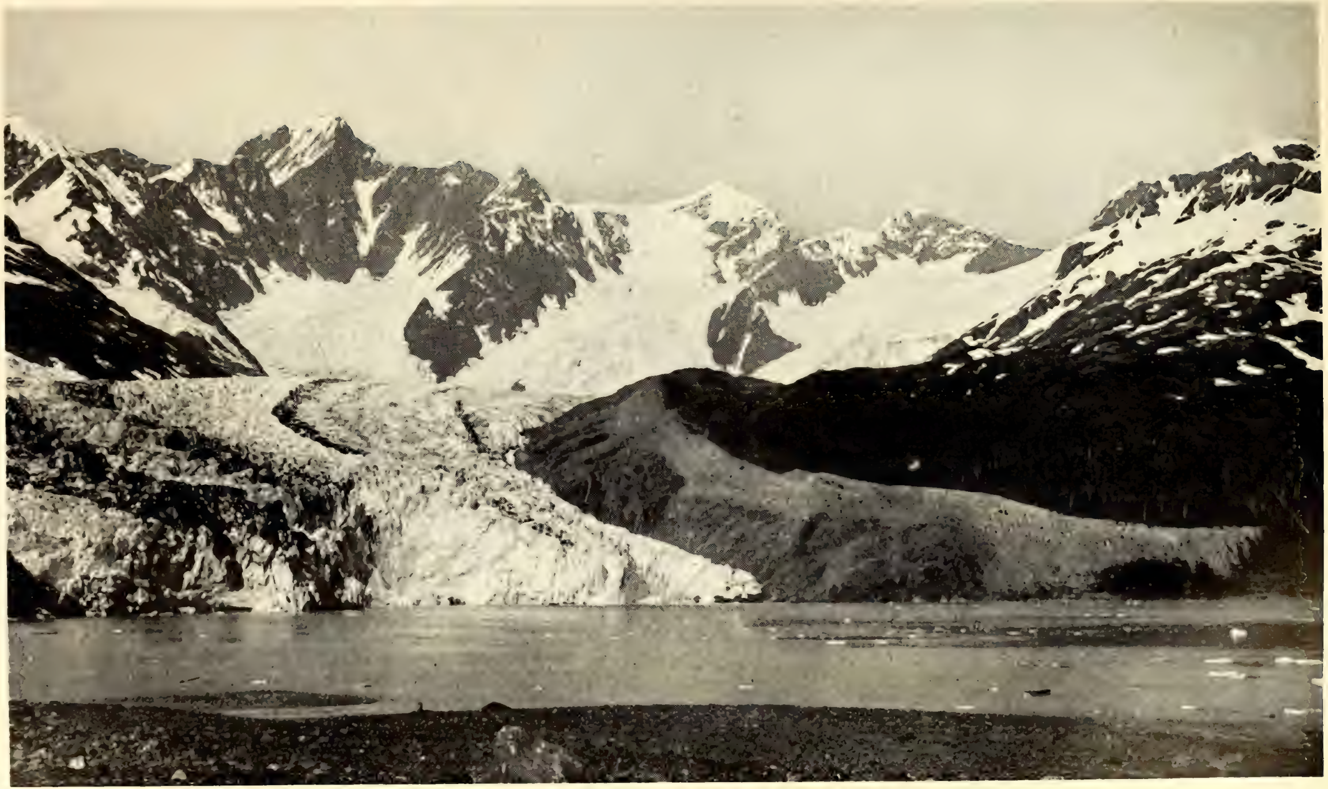
"One summer afternoon, 35 years ago, I rode along a high plateau in southern Utah. My companions were Hoxie, a young army officer; Weiss, a veteran topographer, who mapped our route as we went; and Kipp, an assistant whose primary duty was to carry a barometer. Not far behind us was a pack-train. We were explorers, studying the geography and geology of a strange land. About us was a forest of pine and fir, but we rode through a lane of sunlit prairie cradled in a shallow valley. Suddenly the floor of the prairie came to an end, and we halted on the crest of a cliff overlooking a vast expanse of desert lowland. The desert was not a monotonous plain, like that of northwestern Utah, but a land of mesas, cañons, buttes, and cliffs, all so bare that the brilliant colors of their rocks shone forth—orange, red, chocolate, blue, and white—fading slowly into the gray of the remote distance. We were looking across the broad barren tract through which the Colorado winds in Glen and Marble cañons, and of which the Painted Desert of Arizona is a minor division. To most of us it was a supreme vision of beauty and grandeur as well as desolation, a scene for which words were inadequate; and we stood spellbound. The silence was at last broken by Kipp, who exclaimed, 'Well, we're nicely caught!' and his discordant note so carried us from the sublime to the ridiculous that our tense emotion found first expression in a laugh.

"The reminiscent story has been told to illustrate the relation of the traveler's appreciation to his point of view. Kipp saw only that the cliff at our feet barred further progress in that direction, and all that had appealed to the others most strongly was lost on him. Hoxie, Weiss, and I doubtless saw different things in the landscape, for we were trained in diverse schools, but our personal points of view all included the esthetic factor, and that factor lifted us above the plane of petty annoyance into a realm of exalted emotion. We saw what we had eyes to see. Our point of view was the measure of our perception and appreciation."*

When a member of the Harriman Alaska Expedition, in 1899, Gilbert seemed still in the prime of physical vigor, never hesitating to undertake active and difficult work among mountains and glaciers, undeterred by hardship or danger. His most noteworthy side trips perhaps were one to the glaciers of Geike and Reid inlets, traversing in a small boat, accompanied by Muir and Palache, the ice-choked channel of the northwest arm of Glacier Bay, and camping on the bare rock close to the ice; and one in Prince William Sound, where, with Coville and Palache, he explored and mapped the most stupendous glacier visited by the expedition, a glacier having a sea-wall frontage

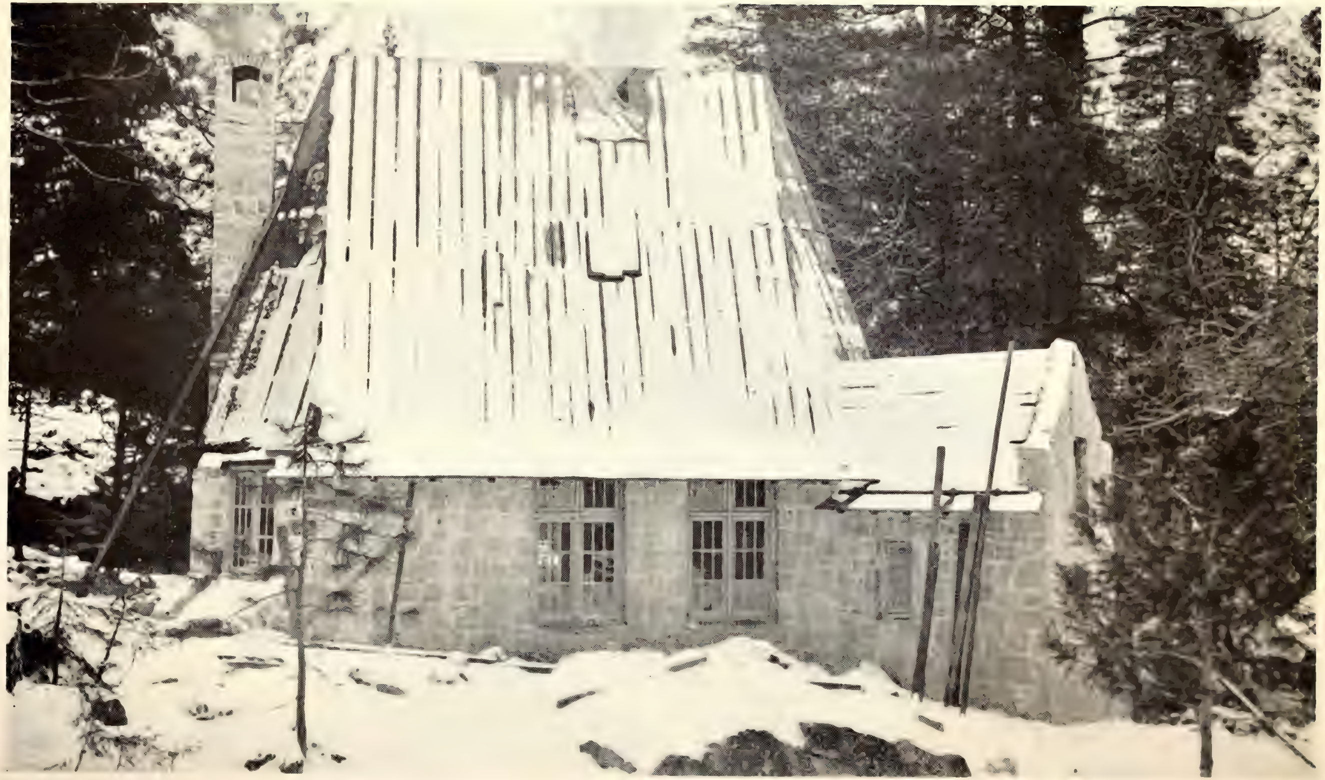
---

* Sierra Club Bulletin, p. 225, Jan., 1908.



MOUNT GILBERT

Peak behind Serpentine Glacier, emptying into College Fiord, Alaska



LE CONTE MEMORIAL LODGE, DECEMBER, 1918
Being reconstructed in Yosemite Valley for the Sierra Club by Camp Curry Company,
halfway between the old site and Sentinel Hotel

Photo by J. N. Le Conte

of four miles. This he named after the geologist and explorer I. C. Russell, but later, finding Russell's name preoccupied by a glacier in the Copper River region, this one was rechristened the Columbia.

When steaming northward along the lofty ice-wall of La Perouse Glacier, he noticed a number of tilted trees near the north edge of the ice, and induced Mr. Harriman and one or two others to accompany him ashore in a whale-boat, landing in a stiff surf, by which they were properly soaked. Climbing the lateral moraine to the edge of the forest, he was much interested in finding the foremost trees ground into pulp and splinters, intermixed with the material of the moraine—the result of a recent northward advance of this corner of the glacier.

During a brief landing at St. Matthews Island in Bering Sea, Gilbert made an ornithological discovery of considerable interest, finding two nests of the white Hyperborean Snowflake —one of the rarest and most beautiful of American birds and one not known to breed anywhere in the world except on this island and its close neighbor, Hall Island. The bird belongs to a group whose members usually place their nests on the ground among grass or other plants; but those discovered by Gilbert were in holes a foot or two deep on the sea-face of cliffs—an extraordinary location, due without doubt to the abundance of the bird's arch enemy, the arctic fox.

In later years, when the strain of continued mental effort brought on distress of the head, he was forced to shorten the hours of work with resulting increase in the time available for other occupations. He had been a famous walker, but at this period was no longer able to do much tramping and had to seek exercise and amusement in other ways. Fortunately, he was fond of canoeing, and in favorable weather, when in Washington, might be seen paddling on the Potomac River nearly every afternoon. At other times, if like-minded companions were available, he played billiards, dominoes, or cards, or read aloud; and when alone, alternated reading and solitaire. Once or twice a year he went to see a game of ball, or took the children of some friend to the circus; but he did not care much for the theater or for music, and needed the stimulus of companionship to indulge in either. He disliked public meetings and dinners—even those of scientific societies — and finally gave them up altogether. When urged to go, his usual reply was that for half a century he had done his full duty in this line, having served in various offices and committees, and felt that for the rest of his life he was entitled to freedom from the fatigue and mental strain incident to such gatherings.

My acquaintance with Gilbert dates from the winter of 1871, after his return from his first season's field-work in the far West. He was then only twenty-eight years of age and in the vigor of young manhood. I was impressed by his splendid physical appearance, by the dignity of his presence, and the maturity of his judgment. As he grew in years and knowledge, there came to him a certain nobility of purpose and bearing that was felt by all who knew him. Association with a man of such scope of intellectual activity, such rare scientific training, such high ideals, and such winning personal qualities could but exert, albeit unconsciously, a happy influence on one's life and work. The memory of our friendship, extending over a period of forty-six years—during nineteen of which he was an intimate member of my household—will always be cherished as one of the privileges of my life.

To those who knew him, the memory of Grove Karl Gilbert will always stand out in bold relief. In our minds he will live as a type of the exceptional man: Tall and of fine presence, frank, informal, yet dignified and courteous, unobtrusive, patient, sympathetic, considerate of others. Whether measured by mental alertness, breadth of view, or scholarly attainment; by the scope and value of his contributions to science; by the logic and clearness of his presentation of scientific problems; by the sincerity, fairness, and painstaking thoroughness of his work, or by the charm and inspiring influence of his unassuming personality, he loomed above most of his fellows and was looked up to and admired—for his qualities were those that appeal to the heart as well as to the mind.

An authority in many fields, and yet one who never assumed authority; a leader in science, and yet one who never assumed leadership; neither power nor glory did he seek, but the satisfaction of contributing his share to the sum of human knowledge.

GROVE KARL GILBERT

AN APPRECIATION

By Joseph Barrell

❧

A LEADER in thought is known personally to relatively few, a few hundreds perhaps, or a few thousands. He becomes known impersonally to a vastly greater number, living in distant lands or in later generations. From each point to which his influence reaches a somewhat different view of his personality is obtained. In this series of appreciations of the life and work of Grove Karl Gilbert the present contribution is from a geologist of a younger generation who met him personally and in conversation but once, in 1908, who has corresponded with him perhaps ten or a dozen times, but who has found in his scientific methods and publications a constant source of knowledge and inspiration.

What are the features of Gilbert's personality and scientific achievements as they stand out to one who thus is situated intermediate in distance between his limited circle of intimates and contemporaries, on the one hand, and that indefinitely larger circle, on the other hand, who have known and will know him only through his works?

Gilbert's personality was one which could not fail to impress itself, even at a first meeting; tall, blue-eyed, reddish-brown hair, and of great bodily vigor while still in his prime, his physical impressiveness matched his mental qualities. There were many notable features in his character: his kindliness and interest in the work of younger men, his judicial quality and clarity of thought, his transparent honesty, his lack of dogmatism, his readiness to review and revise if need be his own conclusions; these were outstanding characteristics, yet, as his contemporary, Professor Chamberlin, has written of him, "It is doubtful whether the products of any other geologist of our day will escape revision at the hands of future research to a degree equal to the writings of Grove Karl Gilbert."

Gilbert was by nature predestined to be a geologist. He possessed a keen, exact, and philosophical mind, which showed through his speech and writings. He delighted to extract new principles from masses of observed facts, and these mental qualities, combined with a love of nature, determined the lines of his life-work. Into this he grew as opportunity offered through the Ward Natural Science Establishment, the Ohio Geological Survey, the Wheeler and Powell explorations of the west, and finally the United States Geological Survey. He was the only man who, during the existence, through the past thirty years, of the Geological Society of America, has been elected a second time its president, a recognition of his character as much as of his ability. Speaking in acknowledgment of this unusual honor, he said that he was fortunate in being able to pursue a life-work which had always been to him a source of delight.

Gilbert entered geology at a time when it was mostly a descriptive and qualitative science. The habit of his mind was logical and mathematical. These were the qualities of which geology at that time stood in need, and his ability in these directions, even to the close of his life, is shown in his monographic studies on the "Transportation of Debris by Running Water," prosecuted during years of ill-health, and published when he was seventy-one years old. That the same qualities were present even in his boyhood may be gathered from the following extract from one of his letters to the writer, in which he was discussing the possibility of the rhythmic action of the tides producing a progressive motion:

> When I was a boy I noticed that by rocking a skiff I gave it a forward motion. That led to the trial of other impulses, and I found that by standing near the stern and alternately bending and straightening my legs, so as to make the skiff rock endwise, I could produce a forward velocity of several yards a minute. If I stood one side of the medial line, the skiff moved in a curve. The motions I caused *directly* were strictly reciprocal, the departures from initial position being equaled by the returns. The *indirect* result of translation was connected with reactions between the water and the oblique surfaces of the boat. There seems to me a close analogy between these reactions and theoretic reactions of an ocean swayed by tidal forces upon oblique surfaces of its basin.

He will be longest remembered for his classic papers on the Henry Mountains and on Lake Bonneville, but his deep-seated analytical instincts and the far-sighted nature of his conclusions are perhaps even better manifested in a number of his shorter papers. In his contributions on isostasy, geologic time, joints, fault-block mountains, and on the methods of scientific investigation, he was clear, original, and convincing. His presidential address before the Geological Society of America in 1892, on "Continental Problems," was a paper remarkable in comprehensiveness of view. In it he raised a number of questions on important topics which geologists disregarded, and showed himself twenty years in advance of his time in the appreciation of the large significance of unconformities.

PROFESSOR JOE*

By D. S. Richardson

❧

OUR ranks are few, Professor Joe,
Who loved thee in that long ago
    Of smiles and tears.
But still the perfume of thy days
Floats downward to us through the maze
    Of vanished years.

Thrice blessed is he whose memory
Comes back in music from the sea
    Of other days;
Nor builds he surer monument
Than that which speaks the heart's content
    In words of praise.

We see him still amid the throng—
So grave and sweet, so wise and strong—
    So shaped in gentleness;
The lover of all things that be,
The fount of truth and chivalry—
    The refuge of distress.

Thou art not dead. The simple stone
Beneath the oaks which thou hast known
    Records thy name;
But, graven on the hearts of men,
'Tis writ in light and lives again
    In deathless flame.

February, 1919

---

*Professor Joseph Le Conte was always affectionately known as "Professor Joe" to his students. He was a charter member of the Sierra Club and one of its first directors.

SOME SIERRAN CHIPMUNKS

By Harry S. Swarth

With Notes on Photography of Small Mammals by Joseph Dixon

(Contribution from the Museum of Vertebrate Zoology of the
University of California)

THE timbered portions of California, which means the mountains for the most part, do not support as large a squirrel population as conditions apparently warrant — not nearly equal to that found in the hardwood forests of eastern North America, for example—but to make up for this deficiency there is certainly an abundance of chipmunks, both of species and individuals.

The traveler through the mountains finds them almost constantly in view, scampering over rocks and logs or diving through tangles of underbrush at his approach, chipping defiantly from a securely distant perch, or, as often as not, invading his camp and examining his belongings.

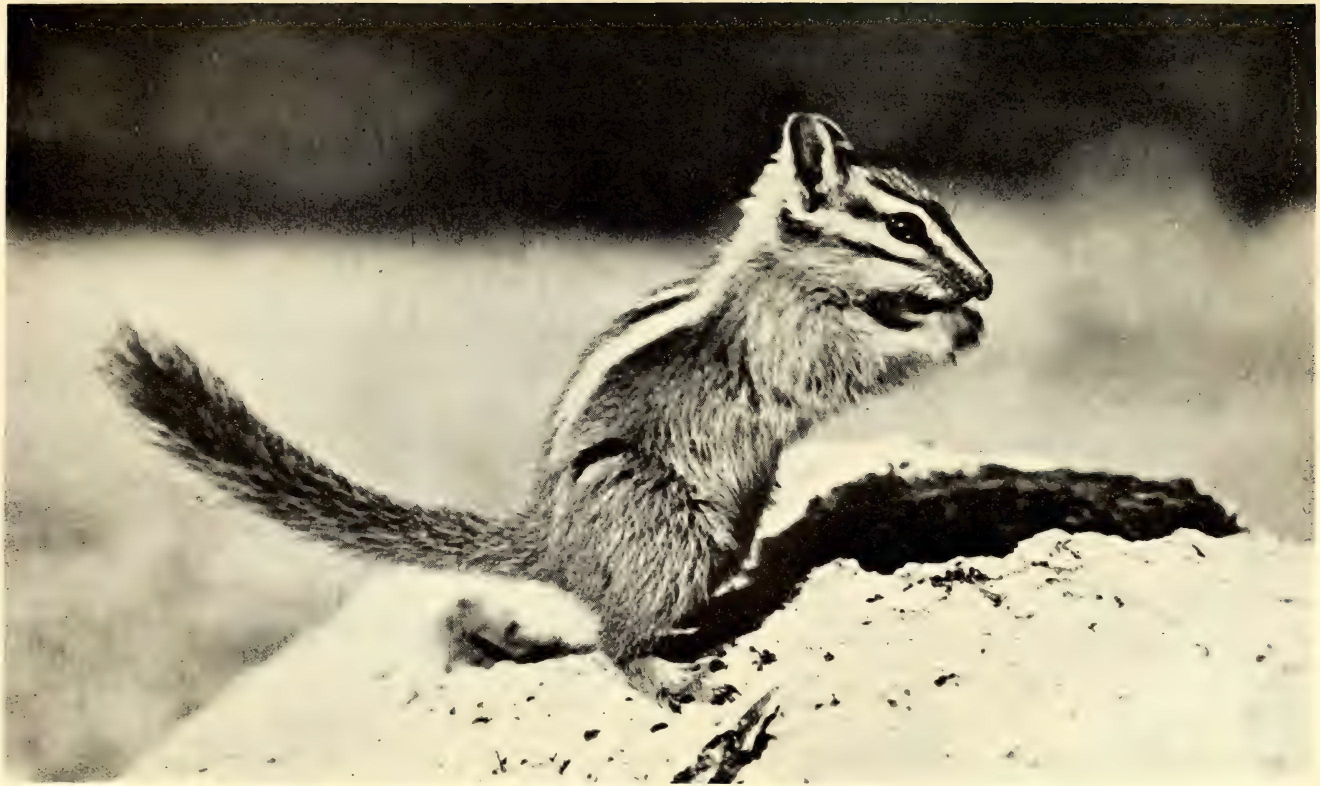
The chipmunks' large relative, the Douglas Squirrel, has been immortalized by John Muir, and a reading of that gifted writer's sympathetic portrayal of the squirrel and its surroundings has doubtless familiarized the animal to many visitors to the Sierras, indeed has probably caused many to make special search for it when passing through its haunts. Also the Douglas squirrel is big enough and conspicuous enough, both vocally and otherwise, to fairly force itself upon the notice. With the tiny chipmunks, however, it is different.

California contains a host of these little animals, at least eighteen species and subspecies of the tree chipmunks alone (the genus *Eutamias*), all very much alike to the casual view —small, brownish-colored, and striped in the same general pattern—so that the average mountain visitor desiring to know more about them is apt to throw up his hands in despair at the hopelessness of the attempt to distinguish one from the other.

Without, however, making any attempt at the careful study necessary to distinguish certain of the closely similar varieties, it is quite possible for anyone to learn to recognize some of the more outstanding species, especially so as it is seldom the case that the closely related ones occur together at the same place. The chipmunks of the Kings River section of the Sierra Nevada may be taken as fair examples of the manner in which several species occur in the same general region, all to be seen, perhaps, in the course of a day, but each one, by choice of immediate surroundings or mode of life, sufficiently isolated to avoid too close competition with his relatives. In the following account the specific peculiarities of the chipmunks noted by the authors of this paper on a trip through this part of the Sierra are briefly outlined, affording the interested visitor to the mountains a means of distinguishing the species one from the other.

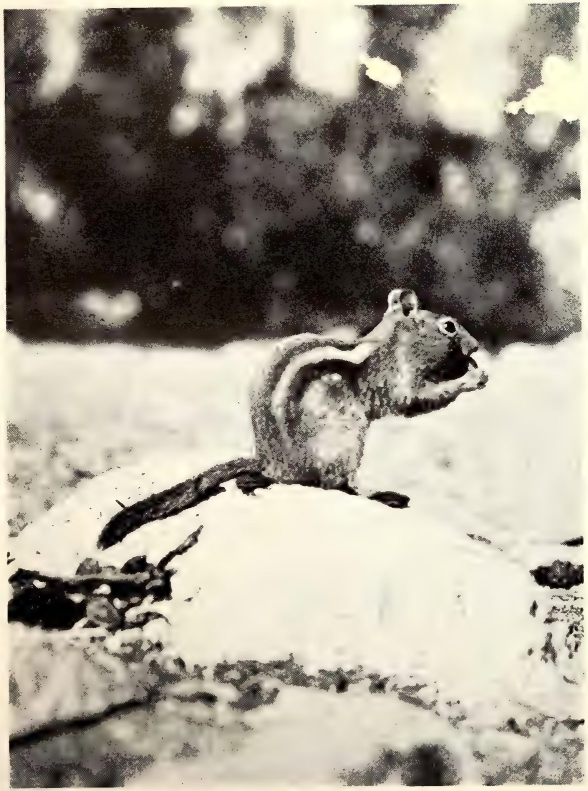
In entering the mountains from the west the first of this group of mammals to be encountered is the Mariposa Chipmunk *(Eutamias merriami mariposae)*. This is a local Sierran race of the wide-spread Merriam Chipmunk *(Eutamias merriami)*, which, in its several varieties, occurs throughout the lower timbered portions of California, southward from Yosemite in the Sierras, from San Francisco Bay along the coast. Going into the mountains from the vicinity of Fresno or Sanger, live-oak timber and brush is first encountered at about 1500 feet elevation. In all probability the Mariposa Chipmunk extends down as far as this brush is found. It is an animal of the underbrush primarily, scurrying into thickets when alarmed, and taking the utmost advantage of such cover in keeping out of view. This is the most shy and wary of any of the chipmunks found in this part of the mountains, and it may successfully elude observation for days, the only intimation of its near presence being the hollow barking note heard issuing from the thickets. At Dunlap (2000 feet elevation), in the heart of the live-oak belt, about half-way from the foothills to General Grant National Park, we were well within the home of the Mariposa Chipmunk, but it took most assiduous search to catch even an occasional glimpse of one.

In Kings River Cañon we were more fortunate. The species probably does not occur at all on the higher ridges traversed in reaching the cañon, as in General Grant National Park, at

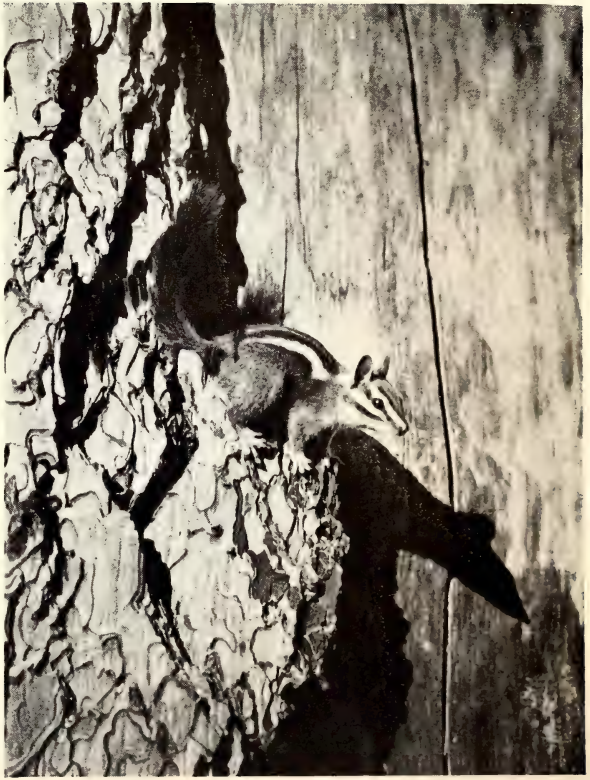


ALPINE CHIPMUNK—NATURAL SIZE
Bullfrog Lake (10,600 ft.), Fresno County, California, September 1, 1916

Photo by Joseph Dixon



SIERRA GOLDEN-MANTLED GROUND-SQUIRREL
GATHERING PRUNE-PITS
Bullfrog Lake, Fresno County, California, September 1, 1916
Photo by Joseph Dixon



TAHOE CHIPMUNK ON TRUNK OF YELLOW PINE
Hume, Fresno County, California, August 22, 1916
Photo by Joseph Dixon

Hume, and at Horse Corral Meadow, but it does ascend along the floor of the cañon as far as the mouth of Bubb's Creek. In the upper reaches of the cañon, above Kanawyer's Camp, and on the north side especially, there are broad gravelly stretches interspersed with numerous clumps of manzanita brush, and these are the preferred haunts of the Mariposa Chipmunk. They were difficult to observe here, however, fleeing to cover at the first hint of danger, and usually remaining hidden until the observer's patience was exhausted. About camp more favorable opportunities occasionally presented themselves, for when all was still, with but a single occupant in the tent, and he unobtrusively writing or otherwise quietly engaged, a chipmunk would sometimes carry on exceedingly cautious investigations of the neighborhood. There was one big yellow pine near by that seemed an especial attraction, and, contrary to the usual habit of the species, Mariposa Chipmunks were several times seen here exploring bunches of pine needles at the ends of limbs fifty or sixty feet from the ground. If the tree were approached, the chipmunk usually vanished, apparently at once disappearing into thin air in a fashion that was most exasperating. The explanation of these disappearances was finally supplied by one unfortunate individual caught in the top of a little oak tree before he had time to scamper to the ground. This chipmunk was seen to disappear in the upper branches, and the tree was so small and so near by that it seemed impossible for him to have descended unseen. A careful scrutiny of each branch and twig brought no results until the eye was caught by a slight movement. Then the chipmunk was seen in plain sight, stretched out along a small branch, perfectly motionless, but—an unfortunate oversight—with his long tail hanging limply down, to be caught by the faint breeze that was now waving it to and fro.

Characteristics of the Mariposa Chipmunk that may be used in distinguishing it from the other species of this region are as follows: The choice of habitat, usually underbrush rather than trees, and its habit of generally (though not invariably) descending to the ground when surprised in the tree-tops; the rather dark coloration, the characteristic chipmunk stripes on the sides not being so sharply defined as to be readily seen at a little distance; the long tail, which is not usually jerked nervously about, as in so many species, but is waved sideways, sinuously, in rather catlike fashion. The last mentioned is an especially good recognition mark, even at some little distance. Total length is from ten to twelve inches. The tail, to end of hairs, is from five to six inches, longer in proportion to total length than in the other species of the region.

Probably the most abundant species of chipmunk in the Kings River section of the Sierra Nevada is the Tahoe Chipmunk *(Eutamias speciosus frater),* again a local race of a widespread species *(Eutamias speciosus)* occurring in the higher mountains from southern California to Lake Tahoe. This is an animal of the middle altitudes, not seen until the brushy home of the Mariposa Chipmunk is left behind, and seldom venturing up into the rocky habitat of the Alpine Chipmunk of the extreme heights.

At Hume, near General Grant National Park, the species was extremely abundant, fairly swarming about the corrals and barns of the settlement, while out in the woods innumerable havens of refuge were afforded the chipmunks by the piles of brush the lumbermen left behind them. Hume and Horse Corral Meadow seemed about the proper altitude and the types of country that suited them best. On another visit to the mountains the species was found in great numbers in the higher parts of Sequoia National Park, a few miles to the southward. A few were seen in Kings River Cañon, together with the Mariposa Chipmunks, and some ventured up into the lower part of the Alpine Chipmunk's domain, but they were but stragglers, the metropolis of the Tahoe Chipmunk lying between these extremes.

This species lacks the suspicious nature of the Mariposa Chipmunk. He is alert enough, and wary in reason, but gives his confidence judiciously and soon responds to friendly advances. When danger really threatens, however, he is off like a flash, taking refuge, preferably, in the trees, and usually making for some friendly hollow. The chipmunk has real need of all his speed and all his acuteness, for there are enemies at every hand who are quite his equal in these respects, who, indeed, must necessarily overreach him occasionally to insure their own existence. A Cooper Hawk gliding through the trees along Bubbs Creek with a long tail dangling from his claws, and a Western Red-tail Hawk, seen at Horse Corral Meadow, making off with a satisfied air, a similar token of success streaming below, bore convincing evidence of what happens to the luckless chipmunk who relaxes his vigilance at the wrong moment.

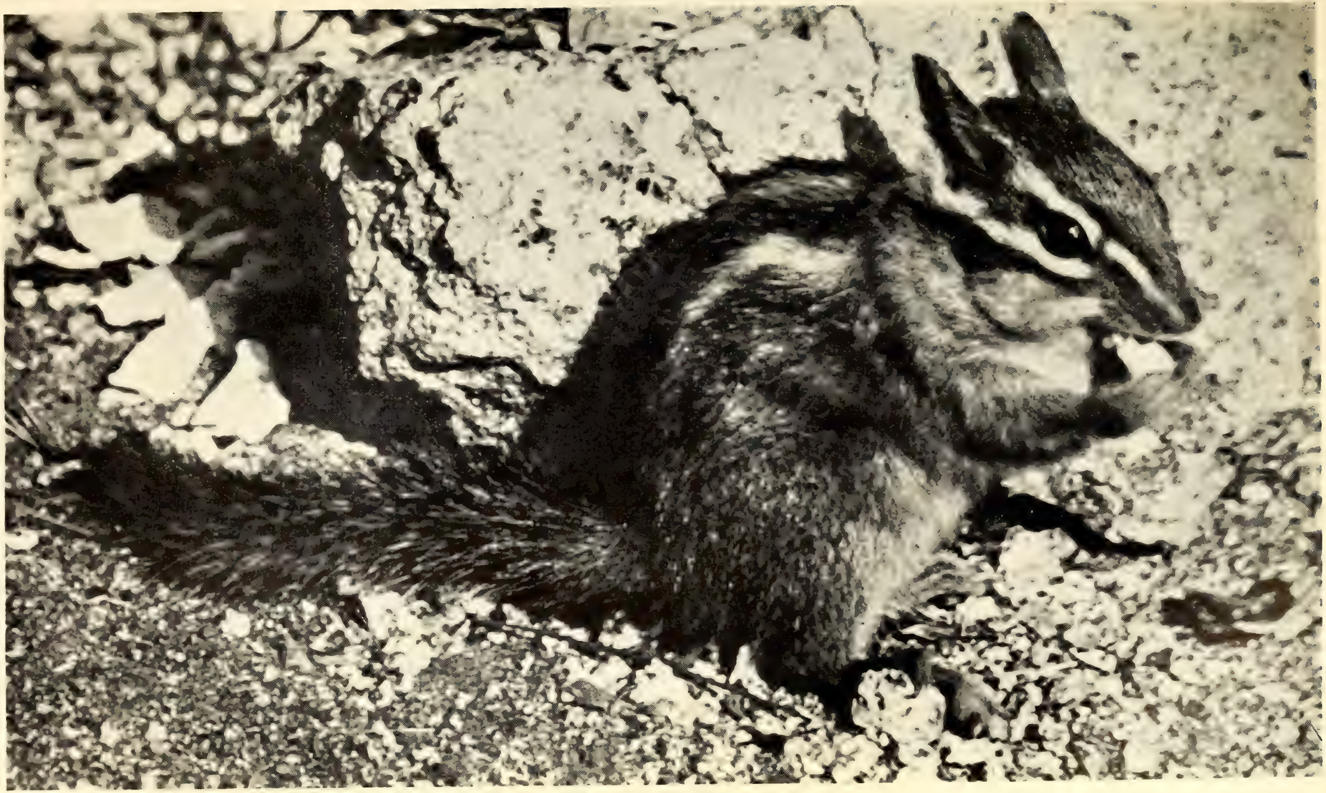
At the time of our visit to Horse Corral Meadow, in late September, the Douglas Squirrels were hard at work harvesting nuts from the pine cones, being especially busy in the tamarack groves. Climbing to the upper branches, where the green cones were numerous, the squirrel would cut them off as rapidly as possible, letting the cones drop to the ground. Twenty or more might be severed in rapid succession (and far more quickly than one would imagine possible) before the worker would descend to carry them away, apparently to some secret cache. On several such occasions an astute chipmunk was seen waiting below the tree to reap a share of the harvest with the minimum of effort. And the squirrel was never seen to take offense.

It is difficult, perhaps impossible, to point out features whereby the Tahoe Chipmunk may be unfailingly recognized, and this, too, despite the fact that one familiar with the animal can usually distinguish it at sight. In this, as with many other species, it is probably a matter of learning to know them as one knows one's friends. We may classify one species as having a longer tail than another, but when we see one of the animals at large we no more recognize it by its longer tail than we recognize our friend on the street by his long nose! Who can say what it is about an intimate associate that causes recognition nearly as far as he can be seen? Surely no distinctive "recognition marks." Similarly, when an animal species becomes familiar to a person it is frequently recognized through an individuality that defies analysis. However, for a first acquaintance some recognizable features are necessary, and the following are suggested as of use in distinguishing this animal in life. Compared with the Mariposa Chipmunk, the Tahoe Chipmunk is of somewhat smaller size, with noticeably shorter tail. Total length is about nine and a half inches, tail about four and a half. The latter is jerked nervously about in a quite different manner from the slower undulations performed by the Mariposa Chipmunk. In coloration the Tahoe Chipmunk is of a brighter, more ruddy appearance, with the stripes along back and sides conspicuous to view at some little distance. Finally, this chipmunk will permit of a near enough approach so that coloration and other features are easily apparent, while with the Mariposa Chipmunk it is for the most part a mere chance if one obtains a close enough and leisurely enough view for satisfactory observation.

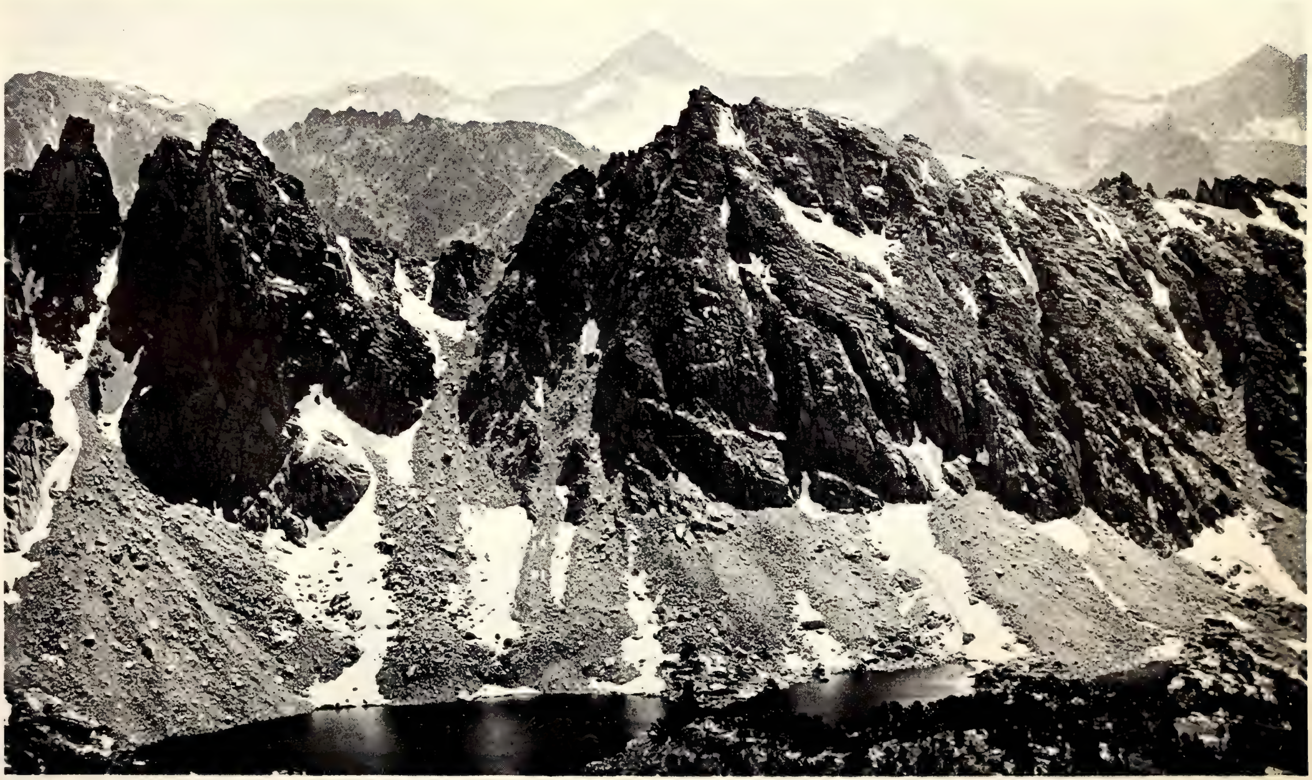
Of all the animals of the California Sierras there is none that makes a stronger appeal to the sympathies than the little Alpine Chipmunk *(Eutamias alpinus),* that tiny dweller of the inhospitable heights. Delicate and fragile, to all appearances as unfit for hardship as a butterfly, he still has made his home in the most forbidding portion of a region sufficiently rugged at the best. This habitat comprises the highest parts of the Sierra Nevada, from Tulare County north to Kearsarge Pass, or perhaps farther, and extends from a little below the timberline practically to the summits of the loftiest peaks. Abundant opportunities of making acquaintance with the Alpine Chipmunk were found in the region about Bullfrog Lake, between Kings River Cañon and Kearsarge Pass, and he is such a friendly little fellow that we felt that we were becoming quite fully acquainted with the more public phases of his existence. Of the privacy of his home life, however, but little is known, as is the case with so many animals, both large and small, and there is still to be disclosed the manner of home he makes, and, also, just how he spends the long rigorous winters of the mountain-tops, to say nothing of the host of details that suggest themselves in this connection.

Alpine Chipmunks were constant visitors to our camp at Bullfrog Lake, about 10,000 feet altitude, and just below the upper limit of upright timber. We were there in September, when the short summer was already drawing to a close—a thin film of ice formed on the lake each night—and the chipmunks were evidently beginning to bestir themselves in preparation for the cold weather that was coming. All about the edges of the lake they were busy in the little clumps of dwarf willow, scrambling up into the branches and bearing away bundles of

PLATE CCXXV.



LONG-EARED CHIPMUNK
(Eutamias quadrimaculatus)
Photographed at Glacier Point, Yosemite National Park, by W. L. Huber



MOUNT BREWER, KEARSARGE PINNACLES, AND LAKES
In proposed extension of Sequoia National Park

Photo by J. N. Le Conte

the soft down, as much as they could carry, this presumably for nest-lining. The enterprising little chap whose picture is shown herewith discovered a short cut to affluence and the means of furnishing his home far more luxuriously than his neighbors. He was constantly exploring among the interesting contents of our tent, and in the course of these investigations came upon something of real practical use—a large roll of cotton batting! Anything more ridiculous than this mite of a creature standing before the enormous roll of cotton and endeavoring to cram it all into his cheek-pouches it would be hard to imagine. Upright upon his haunches and with both arms outspread, he gathered as much as his reach would encompass and packed it in until his cheeks were bulging and long white strands protruded on either side. Apparently he knew when he had enough for his purpose, for after an active period of journeying to and fro between the cotton and some hidden nook in the rocks, he forsook this line of work and devoted himself to other things.

Our kitchen refuse included much that was attractive to the chipmunks, and several of them were constantly about camp in search of edibles. Everything of the sort was gathered in one place, and they lost no time elsewhere, but went direct to this spot. Prune-stones found great favor, and also trout-bones, sometimes to be nibbled at where discovered and sometimes carried elsewhere. When a whole fish skeleton clung together it was some little task to remove it, and more than one nervous chipmunk, scurrying away with such a load, trod on his trailing burden and turned a complete somersault before he could catch himself.

Elsewhere they were seen busily engaged in garnering the food upon which they doubtless mainly depend. The long grasses of the region were now in seed, and on all sides the chipmunks were encountered in these growths, sitting on their haunches in order to pull the heads within reach, when the seeds were stored away in their cheek-pouches. They were so unsuspicious as to readily endure observation at distances of but a few feet. Several were seen in pine trees, thirty or forty feet from the ground, at work upon the cones, but for the most part they labored on the ground.

The chipmunks were also quite busy at this time hiding things in the earth. It frequently happened that one was seen digging nervously, first in one place, then in another, evidently in search of something buried previously. But when found it would, perhaps, be carried not more than three or four feet away, to be covered up once more. A great deal of such hiding was done, in an apparently aimless way, the objects concealed barely beneath the surface of the ground, and not more than one fragment at any one place. As provision for the winter this would seem to an outsider as apt to be a failure when the snow came, but presumably the chipmunks know how to manage their own affairs. Then, too, on occasion they were seen at work in rather more methodical fashion, the cache being made at the base of a stump or rock that might serve for a landmark later on, and the hole excavated to some little depth. In filling the hole the dirt previously removed was shoved back in by the extended fore paws, with a forward thrust of the whole body.

Alpine Chipmunks were found in great numbers in the region about Kearsarge Pass, on both sides of the divide. One was seen within three hundred feet of the summit of Mount Gould (13,000 feet altitude), and there is little doubt of their ranging over all the higher peaks. We also found a few on Mount Mitchell (near Horse Corral Meadow), where they are restricted to the very summit of the mountain, hence forming an isolated colony away from the rest of their kind. Doubtless there are many such little communities in this section of the Sierra Nevada, on the numerous alpine-arctic peaks rising abruptly above the vast surrounding area of lower elevation.

The tail action of the Alpine Chipmunk affords excellent means of identifying the species. This consists of quick, nervous *upward* jerks, constantly repeated, the tail curved slightly upward, as shown in the picture. Other readily appreciable features are found in the animal's small size (seven and a half inches, or less, in total length) and its pale coloration, the areas which in other species are brown being grayish in this one, and the rufous areas faded out to a decidedly yellowish tinge.

One other animal of this part of the Sierras is deserving of mention in this connection, the Sierra Golden-mantled Ground-squirrel *(Callospermophilus chrysodeirus),* not a chipmunk, though extremely like one in appearance and actions. Besides this rather pretentious "book name," he is variously known as Yellowhead, Copperhead, or Bummer. This animal is in his mode of life much like the ground-squirrel of the lowlands, whereas the various species of *Eutamias* more nearly resemble the tree-squirrels in habits and actions. The yellowhead is rather a prosaic creature, prone to corpulence (not to say greasiness), and with none of the pleasing airiness of his associates. He is not unattractive, however, in his own more stolid way, while the peculiarity of his markings is quite certain to attract attention. The bright yellow head is a sure mark for identification, while the rather large size (total length twelve inches), heavy build, and short tail (about four and a half inches) are additional features that are readily appreciable. A yellowhead was a daily visitor to our camp at Bullfrog Lake, becoming quite tame and confiding. We saw the animals here in numbers, up to points at least as high as the limit of upright timber, and they occur commonly from 9000 to 10,000 feet on both sides of the divide at Kearsarge Pass. They were also abundant at Horse Corral Meadow, but not seen at all in Kings River Cañon.

On the east slope of the Sierra Nevada at this latitude there are other species of chipmunks, more difficult to identify, but the above three species, together with the yellowhead, are characteristic of the western slope at the different levels severally occupied.

NOTES ON PHOTOGRAPHY OF SMALL MAMMALS

The average collection of vacation photographs contains many landscape and camp scenes, with but few, if any, pictures of live wild animals. This is due not so much to lack of interest in the latter subject as to the many difficulties encountered in securing even fairly satisfactory results.

The writer of these paragraphs, after considerable experimentation, has been able to attain a certain degree of success in the photography of small wild animals by the use of apparatus such as can easily be included in the outfit of almost any enthusiastic amateur, and by adopting methods that anyone can learn. Details of the outfit and mode of procedure are given herewith in the hope that they will prove of interest and value to others desirous of following up this line of enterprise without undue expense and trouble.

The belief that good results are to be obtained only by the use of the most expensive type of reflecting camera is not borne out by the facts. On the other hand, one should not expect to secure the best negatives of small living wild animals with the cheapest sort of hand camera. A camera between these two extremes was found in the writer's experience to give excellent results.

Good pictures were obtained with a "stand" or "tripod" camera which has a focal capacity (bellows) about twice the focal length of the lens used. The camera with which were secured the chipmunk pictures accompanying this paper was adapted to take 10-by 15-centimeter and 3¼-by 5½-inch plates. These plates are each of good proportions and of wholly sufficient size. A ground glass which registers the exact position that the plates assume in the camera aids accurate focusing. This is of the utmost importance, for when the object photographed is only three or four feet distant from the lens a change in the position of the subject, if only of a few inches, closer to or farther from the camera, throws the image out of focus.

Metal plate-holders are preferable, as there is less danger of the plates being light-struck when the plate-holders are left in the sun than is the case with wooden holders. A good *anastigmat* lens is a wise investment, as with such a lens enlargements three or four times the original size of the negative can be made with little loss of sharpness. A Dagor lens of 6½-inch focal length, a Turner-Reich convertible anastigmat f/6.8 lens of 7½-inch focal length and a Bausch & Lomb Tessar lens, Series I c, f/4.5, of 7¼-inch focal length,have all proven satisfactory for this work. A "speed" lens is not a necessity, since stops 8, 11, and 16 are the ones most often used. Larger apertures do not give sufficient depth of field when used at a distance of three or four feet, as allowance must be made for slight changes of position by the animal photographed. This difficulty is illustrated in the accompanying picture of the

Golden-mantled Ground-squirrel, where a slight shifting from his accustomed post has thrown the subject somewhat out of focus.

A shutter of the compound type is preferable, as it is comparatively quiet and does not frighten the nervous animals as does the noisy focal-plane shutter. One advantage of the compound type over the common automatic shutter is the fact that the former requires setting for each exposure, and thus obviates double exposure, when the shutter is released from a distance by means of a thread.

Double-coated plates are preferable, in the writer's experience, since their excellent rendering of color values more than offsets the disadvantage of their lack of speed. Both Standard Orthonon and Cramer's Instantaneous Isochromatic were found to be satisfactory, and were preferred to speedy film packs, which latter refused to operate at critical moments on several occasions.

A changing-bag makes daylight loading and unloading of plates an easy matter. This article, together with a developing tank with the usual appurtenances, makes it possible to develop negatives on the spot, thus enabling one to replace faulty exposures before it is too late. As a "safety first" measure this outfit has proved its worth on several occasions. A short sturdy tripod with tilting top, focusing-cloth, exposure meter, thermometer, plate-drying rack, and spool of linen thread complete the list of accessories.

Given a suitable camera and equipment, the next thing is to find the animals to photograph. Chipmunks, squirrels, and birds are often attracted to camp by the refuse thrown out. They thus become accustomed to the presence of human beings, and consequently afford good opportunities for the photographer. A little watching will show certain stubs, stumps, and rocks to be used as points of vantage or as feeding stations by the animals just mentioned. The photographer is thus often able to select a suitable location where light, composition, and background are satisfactory. The camera may then be placed on the tripod and focused upon the exact spot where the animal to be photographed is likely to pause. Care should be taken not to focus on the bark of a tree trunk selected, but on a point at least an inch nearer the lens. This allowance will insure that the animal itself rather than the tree trunk is sharply in focus. By placing the camera three or four feet distant an image nearly one inch high will be obtained with a seven-inch lens. Beware of attempting to work too close to the subject. It is better to enlarge an inch image later on than to try to secure a large image at once by working close up. By working at a reasonable distance, depth of field is obtained and the animal is not badly frightened. A long-focus lens can be used to advantage; but the use of the single combination of the ordinary lens was found to be too slow for such active animals as chipmunks.

Exposures of 1/50 second at stop 11, or 1/25 second at stop 16, were found to give well-exposed negatives when the subjects were in direct sunlight. The shorter exposure was found best, and even then the motion of the front feet or paws was not always stopped, as is seen in the photograph of the Alpine Chipmunk. Exact data for this picture (plate CCXXIII) are as follows: September 1, 3 P.M.; bright sun; 10x15 cm. Goerz Tennax camera; 6½-inch Dagor: stop f/11; 1/50 second; 10 x 15 cm. Cramer Inst. Iso. plate; pyro in tank; enlargment 3⅓ times on No. 6 Studio Enlarging Cyko. It will soon be found that momentary pauses in the animals' activities can be taken advantage of and good negatives secured at these opportune moments.

All moving parts (levers) of the shutter should be hidden from the chipmunk's keen vision. Otherwise, the animal is warned of danger when the release moves and starts to flee before the exposure is complete, a blurred negative resulting. By draping a piece of cloth over the releasing lever this tendency of the sitter to "jump the gun" is avoided, and sharp negatives can be secured. A black pasteboard box set on the tripod was found to serve excellently as a dummy to accustom the animal to the camera. The shutter was usually operated at a distance of about fifty feet, by means of a thread tied to the shutter release. By this method one is able to watch the subject from a distance and still make the exposure at the proper time.

It should be remembered that the co-operation of the animal to be photographed must be obtained, and that patience on the part of the operator is therefore a large part of the game. It sometimes happens that individual chipmunks or other animals are found which refuse to tolerate the camera, and then a new subject must be hunted up. In my own experience, certain individuals have been found that were much easier to photograph than others of the same species at the same time and place.

The success of the photographer in this field will depend on three things: suitable equipment, patience, and some knowledge of the habits of the *individual* animal to be photographed.

STUDIES IN THE SIERRA*

BY JOHN MUIR

NO. V. POST-GLACIAL DENUDATION

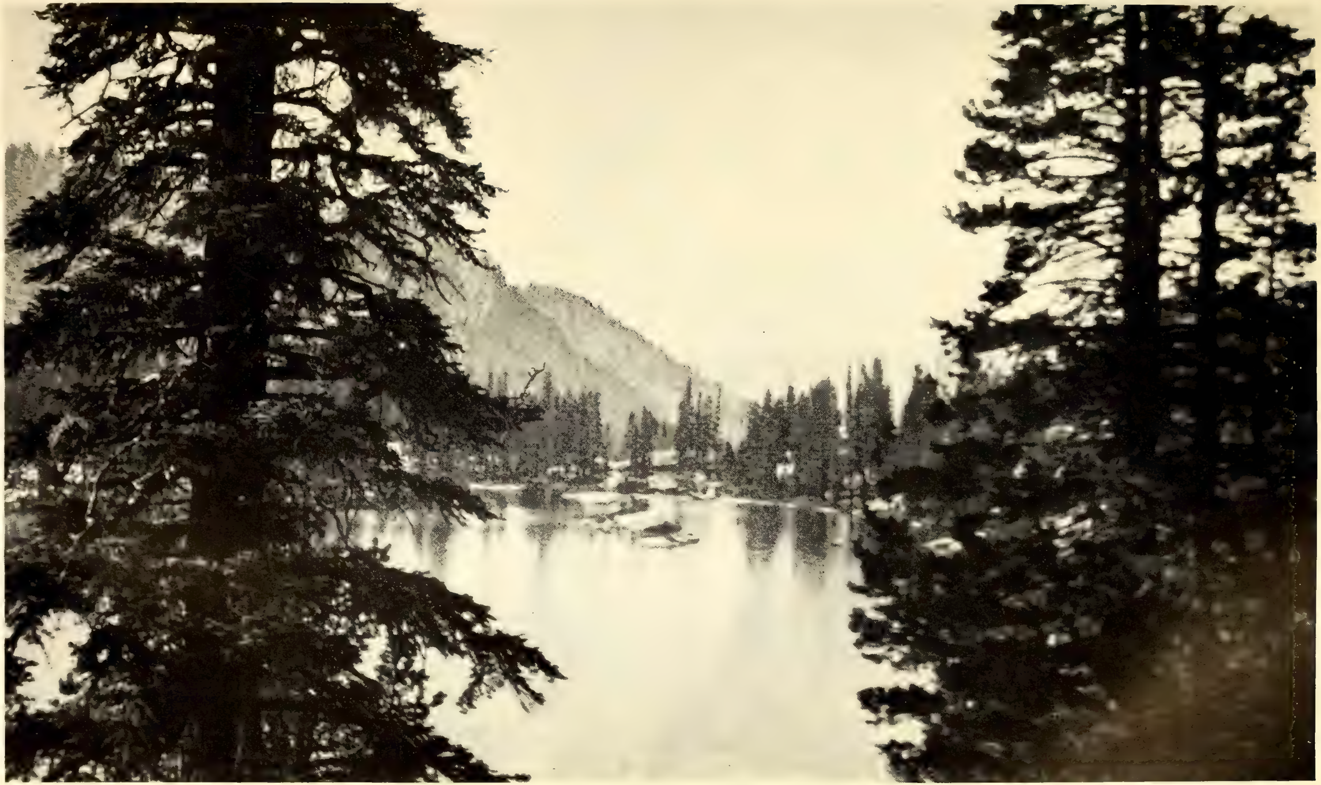
◆

WHEN Nature lifted the ice-sheet from the mountains she may well be said not to have turned a new leaf, but to have made a new one of the old. Throughout the unnumbered seasons of the glacial epoch the range lay buried, crushed, and sunless. In the stupendous denudation to which it was then subjected, all its pre-glacial features disappeared. Plants, animals, and landscapes were wiped from its flanks like drawings from a blackboard, and the vast page left smooth and clean, to be repictured with young life and the varied and beautiful inscriptions of water, snow, and the atmosphere.

The variability in hardness, structure, and mineralogical composition of the rocks forming the present surface of the range has given rise to irregularities in the amount of post-glacial denudation effected in different portions, and these irregularities have been greatly multiplied and augmented by differences in the kind and intensity of the denuding forces, and in the length of time that different portions of the range have been exposed to their action. The summits have received more snow, the foothills more rain, while the middle region has been variably acted upon by both of these agents. Again, different portions are denuded in a greater or less degree according to their relations to level. The bottoms of trunk valleys are swept by powerful rivers, the branches by creeks and rills, while the intervening plateaus and ridges are acted upon only by thin, feeble currents, silent and nearly invisible. Again some portions of the range are subjected every winter to the scouring action of avalanches, while others are entirely beyond the range of such action. But the most influential of the general causes that have conspired to produce ir-

---

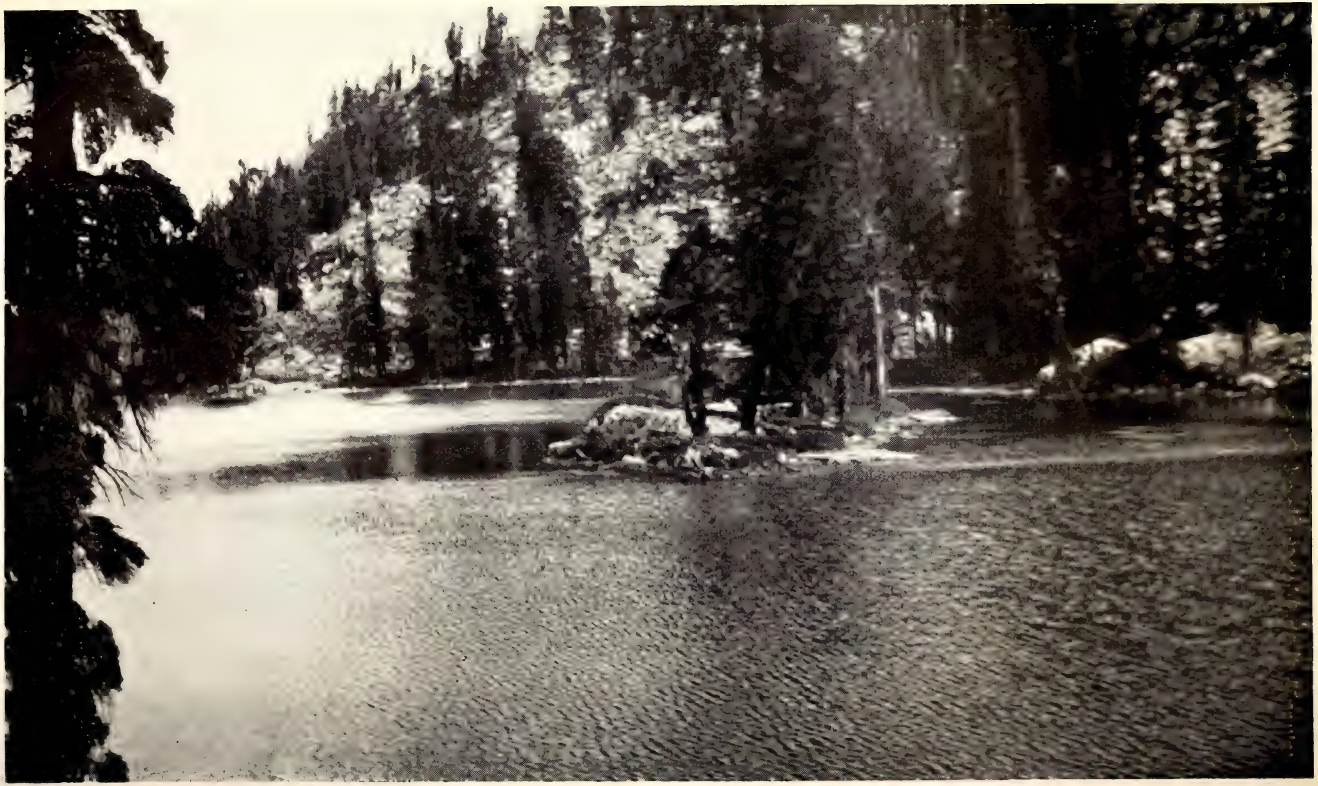
* Reprinted, as revised by the author, from the *Overland Monthly* of November, 1874.



TEN LAKE BASIN, YOSEMITE NATIONAL PARK

"Ten lovely lakelets lying near together in one general hollow, like eggs in a nest."—John Muir

Photo by Wm. E. Colby



TEN LAKE BASIN, YOSEMITE NATIONAL PARK

"Seen from above, in a general view, feathered with hemlock spruce, and fringed with sedge, they seem to me the most singularly beautiful and interesting lake-cluster I have ever yet discovered."—JOHN MUIR.

Photo by Wm. E. Colby

regularity in the quantity of post-glacial denudation is the difference in the length of time during which different portions of the range have been subjected to denuding agents. The ice-sheet melted from the base of the range tens of thousands of years ere it melted from the upper regions. We find, accordingly, that the foothill region is heavily weathered and blurred, while the summit, excepting the peaks, and a considerable portion of the middle region remain fresh and shining as if they had never suffered from the touch of a single storm.

Perhaps the least known among the more outspoken agents of mountain degradation are those currents of eroding rock called avalanches. Those of the Sierra are of all sizes, from a few sand-grains or crystals worked loose by the weather and launched to the bottoms of cliffs, to those immense earthquake avalanches that thunder headlong down amid fire and smoke and dust, with a violence that shakes entire mountains. Many avalanche-producing causes, as moisture, temperature, winds, and earthquakes, are exceedingly variable in the scope and intensity of their action. During the dry, equable summers of the middle region, atmospheric disintegration goes silently on, and many a huge mass is made ready to be advantageously acted upon by the first winds and rains of winter. Inclined surfaces are then moistened and made slippery, decomposed joints washed out, frost-wedges driven in, and the grand avalanche storm begins. But though these stone-storms occur only in winter, the attentive mountaineer may have the pleasure of witnessing small avalanches in every month of the year. The first warning of the bounding free of a simple avalanche is usually a dull muffled rumble, succeeded by a ponderous crunching sound; then perhaps a single huge block weighing a hundred tons or more may be seen wallowing down the face of a cliff, followed by a train of smaller stones, which are gradually left behind on account of the greater relative resistance they encounter as compared with their weight. The eye may therefore follow the large block undisturbed, noting its awkward, lumbering gestures as it gropes its way through the air in its first wild journey, and how it is made to revolve like a star upon its axis by striking on projecting portions of the walls while it pursues the grand smooth curves of general descent. Where it strikes a projecting boss it gives forth an intense gasping sound, which, coming through the darkness of a storm-night, is indescribably impressive; and when at length it plunges into the valley, the ground trembles as if shaken by an earthquake.

On the 12th of March, 1873, I witnessed a magnificent avalanche in Yosemite Valley from the base of the second of the Three Brothers. A massive stream of blocks bounded from ledge to ledge and plunged into the talus below with a display of energy inexpressibly wild and exciting. Fine gray foam-dust boiled and swirled along its path, and gradually rose above the top of the cliff, appearing as a dusky cloud on the calm sky. Unmistakable traces of similar avalanches are visible here, probably caused by the decomposition of the feldspathic veins with which the granite is interlaced.

Earthquakes, though not of frequent occurrence in the Sierra, are powerful causes of avalanches. Many a lofty tower and impending brow stood firm through the storms of the first post-glacial seasons. Torrents swept their bases, and winds and snows slipped glancingly down their polished sides, without much greater erosive effect than the passage of cloud-shadows. But at length the new-born mountains were shaken by an earthquake-storm, and thousands of avalanches from cañon walls and mountain sides fell in one simultaneous crash. The records of this first post-glacial earthquake present themselves in every cañon and around the bases of every mountain summit that I have visited; and it is a fact of great geological interest that to it alone more than nine-tenths of all the cliff taluses which form so striking a characteristic of cañon scenery are due. The largest of these earthquake taluses are from 500 to 1000 feet in height, and are timbered with spruce, pine, and live-oak over their entire surfaces, showing that they have not been disturbed since their formation, either by denudation or accessions of fresh material.

The earthquake which destroyed the village of Lone Pine, in March, 1872, shook the Sierra with considerable violence, giving rise to many new taluses, the formation of one of which I was so fortunate as to witness.

The denuding action of avalanches is not unlike that of water-torrents. They are frequently seen descending the summit peaks, flowing in regular channels, the surfaces of which they erode by striking off large chips and blocks, as well as by wearing off sand and dust.

A considerable amount of grinding also goes on in the body of the avalanche itself, reducing the size of the masses, and preparing them for the action of other agents. Some avalanches hurl their *detritus* directly into the beds of streams, thus bringing it under the influence of running water, by which a portion of it is carried into the ocean.

The range of rock avalanches, however produced, is restricted within comparatively narrow bounds. The shattered peaks are constant fountains, but the more powerful mountain-shaking avalanches are confined to the edges of deep cañons in a zone twelve or fifteen miles wide, and gradually merge into land-slips along their lower limits.

Large rock avalanches pour freely through the air from a height of hundreds or thousands of feet, and on striking the bottom of the valley are dashed into a kind of coarse stone foam. Or, they make the descent in several leaps, or rumble over jagged inclines in the form of cascades. But in any case they constitute currents of loose-flowing fragments. Land-slips, on the contrary, slip in one mass, and, unless sheer cliffs lie in their paths, may come to rest right-side up and undivided. There is also a marked difference in their geographical distribution, land-slips being restricted to deeply eroded banks and hillsides of the lower half of the range, beginning just where rock avalanches cease. Again, the material of land-slips is chiefly fine soil and decomposing boulders, while that of rock avalanches is mostly of unweathered angular blocks.

Let Figure 1 represent a section across a valley in which moraine matter, A, is deposited upon the inclined bed-rock, B B B. Now, strong young moraine material deposited in this way, in a kind of rude

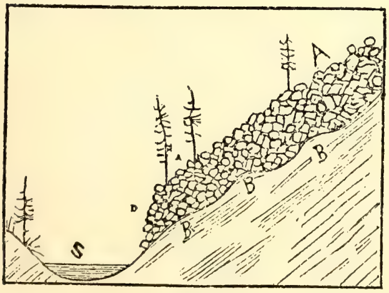


Fig. 1.

masonry, always rests, or is capable of resting, at a much steeper angle than the same material after it has grown old and rotten. If a poultice of acid mud be applied to a strong boulder, it will not be much affected in an hour or day, but if kept on for a few thousands or tens of thousands of years, it will at length soften and crumble. Now, Nature thus patiently poultices the boulders of the moraine banks under consideration. For many years subsequent to the close of the ice period very little acid for this purpose was available, but as vegetation increased and decayed, acids became more plentiful, and boulder decomposition went on at an accelerated rate, until a degree of weakness was induced that caused the sheerest portions of the deposits, as A B D (Fig. 1), to give way, perhaps when jarred by an earthquake, or when burdened with snow or rain, or partially undermined by the action of a stream.

It appears, therefore, that the main cause of the first post-glacial land-slips is old age. They undoubtedly made their first appearance in moraine banks at the foot of the range, and gradually extended upward to where we now find them, at a rate of progress measured by that of the recession of the ice-sheet, and by the durability of moraines and the effectiveness of the corroding forces brought into action upon them. In those portions of the Sierra where the morainal deposits are tolerably uniform in kind and exposure, the upper limits of the land-slip are seen to stretch along the range with as great constancy of altitude as that of the snow-line.

The above-described species of land-slip is followed up the range by another of greater size, just as the different forest trees follow one another in compliance with conditions of soil and climate. After the *sheer end* of the deposit (A B D, Fig. 1) has slipped, the *whole mass* may finally slip on the bed-rock by the further decomposition, not only of the deposit itself, but of the bed-rock on which it rests. Bed-rocks are usually more or less uneven. Now, it is plain that when the inequalities B B B crumble by erosion, the mass of the deposit will not be so well supported; moreover, the weight of the mass will continue to increase as its material is more thoroughly pulverized, because a greater quantity of moisture will be required to saturate it. Thus it appears that the support of moraine deposits diminishes, just as the necessity for greater support increases, until a slip is brought on.

Slips of this species are often of great extent, the surface comprising several acres overgrown with trees, perhaps moving slowly and coming to rest with all their load of vegetation uninjured, leaving only a yawning rent to mark their occurrence. Others break up into a muddy disorderly flood, moving rapidly until the bottom of the wall is reached. Landslides occur more frequently on the north than on the south sides of ridges, because of the greater abundance of weight-producing and decomposing moisture. One of the commonest effects of land-slips is the damming of streams, giving rise to large accumulations of water, which speedily burst the dams and deluge the valleys beneath, sweeping the finer *detritus* before them to great distances, and at first carry boulders tons in weight.

The quantity of denudation accomplished by the Sierra land-slips of both species is very small. Like rock-falls, they erode the surface they slip upon in a mechanical way, and also bring down material to lower levels, where it may be more advantageously exposed to the denuding action of other agents, and open scars whereby rain-torrents are enabled to erode gullies; but the sum of the areas thus affected bears an exceedingly small proportion to the whole surface of the range.

The part which snow avalanches play in the degradation of mountains is simpler than that of free-falling or cascading rocks, or either species of land-slip; these snow avalanches being external and distinct agents. Their range, however, is as restricted as that of either of the others, and like them they only carry their *detritus* a short distance and leave it in heaps at the foot of cliffs and steep inclines. There are three well-marked and distinct species of snow avalanche in the upper half of the Sierra, differing widely in structure, geographical distribution, and in the extent and importance of the geological changes they effect. The simplest and commonest species is formed of fresh mealy snow, and occurs during and a short time after every heavy snow-fall wherever the mountain slopes are inclined at suitable angles. This species is of frequent occurrence throughout all the steep-flanked mountains of the summit of the range, where it reaches perfection, and is also common throughout the greater portion of the middle region. Avalanches are the feeders of the glaciers, pouring down their dry mealy snow into the womb-amphitheaters, where it is changed to *névé* and ice. Unless distributed by storm-winds, they cascade down the jagged heights in regular channels, and glide gracefully out over the glacier slopes in beautiful curves; which action gives rise in summer to a most interesting and comprehensive system of snow-sculpture. The *detritus* discharged upon the surface of the glaciers forms a kind of stone-drift which is floated into moraines like the straws and chips of rivers.

Few of the defrauded toilers of the plain know the magnificent exhilaration of the boom and rush and outbounding energy of great snow avalanches. While the storms that breed them are in progress, the thronging flakes darken the air at noonday. Their muffled voices reverberate through the gloomy cañons, but we try in vain to catch a glimpse of their noble forms until rifts appear in the clouds, and the storm ceases. Then in cliff-walled valleys like Yosemite we may witness the descent of half a dozen or more snow avalanches within a few hours.

The denuding power of this species of avalanche is not great, because the looseness of the masses allows them to roll and slip upon themselves. Some portions of their channels, however, present a roughly scoured appearance, caused by rocky *detritus* borne forward in the under portion of the current. The avalanche is, of course, collected in a heap at the foot of the cliff, and on melting leaves the *detritus* to accumulate from year to year. These taluses present striking contrasts to those of rock avalanches caused by the first great preglacial earthquake. The latter are gray in color, with a covering of slow-growing lichens, and support extensive groves of pine, spruce, and live-oak; while the former, receiving additions from year to year, are kept in a raw formative state, neither trees nor lichens being allowed time to grow, and it is a fact of great geological significance that no one of the Yosemite snow avalanches, although they have undoubtedly flowed in their present channels since the close of the glacial period, has yet accumulated so much *débris* as some of the larger earthquake avalanches which were formed in a few seconds.

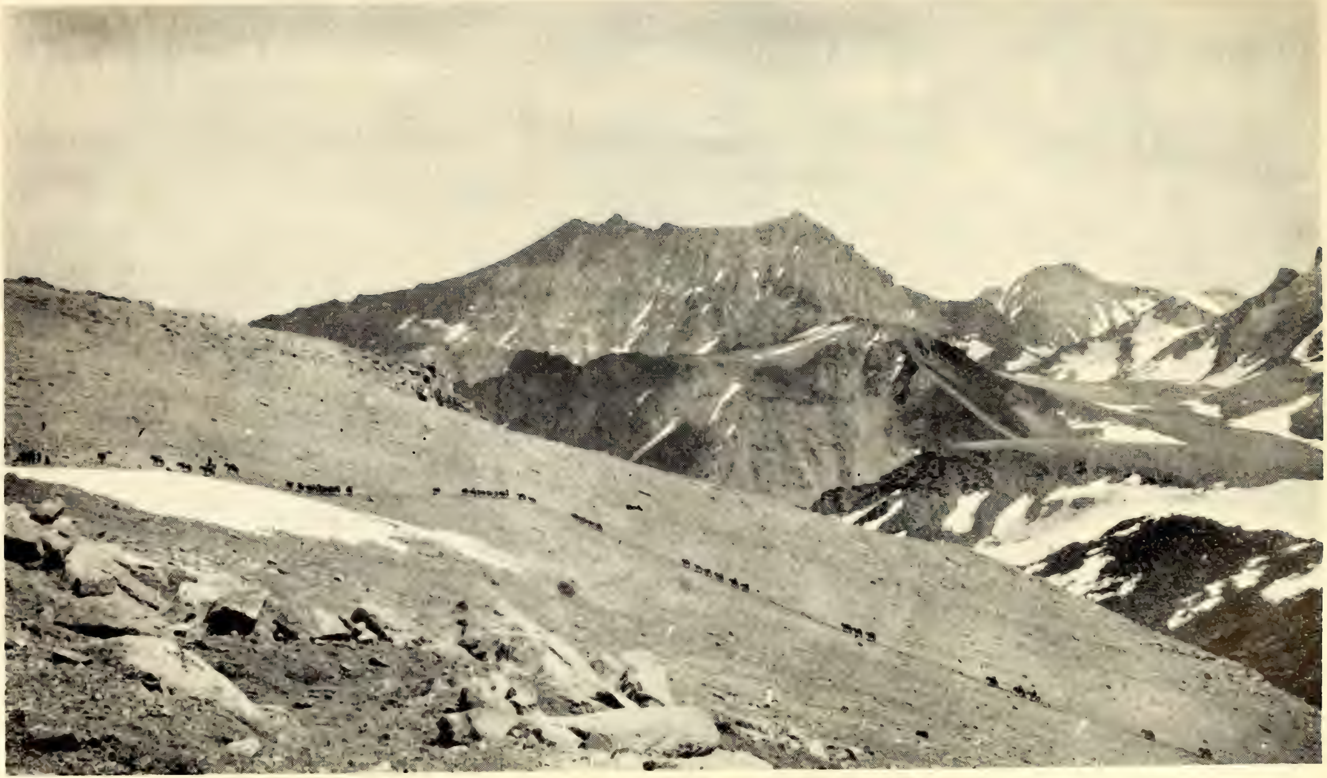
The next species of avalanche in natural order is the annual one, composed of heavy crystalline snows which have been subjected to numerous alternations of frost and thaw. Their development requires a shadowed mountain side 9000 or 10,000 feet high, inclined at such an angle that loose fresh snow will lodge and remain upon it, and bear repeated accessions throughout the winter without moving; but which, after the spring thaws set in, and the mountain side thus becomes slippery, and the nether surface of the snow becomes icy, will then give way.

One of the most accessible of the fountains of annual avalanches is the northern slope of Cloud's Rest, above the head of the Yosemite Valley. Here I have witnessed the descent of three within half an hour. They have a vertical descent of nearly a mile on a smooth granite surface. Fine examples of this species of avalanche may also be observed upon the north side of the dividing ridge between the basins of Ribbon and Cascade creeks, and in some portions of the upper Nevada Cañon. Their denuding power is much greater than that of the first species, on account of their greater weight and compactness. Where their pathways are not broken by precipices, they descend all or part of their courses with a hard snout kept close down on the surface of the rock, and because the middle of the snout is stronger, the *detritus* heaps are curved after the manner of terminal moraines. These *detritus* heaps also show an irregularly corrugated and concentric structure. An examination of the avalanche pathways shows conclusively that the annual accretions of *detritus*, scraped from their surfaces, are wholly insufficient to account for the several large concentric deposits. But when, after the *detritus* of many years has been accumulated by avalanches of ordinary magnitude, a combination of causes, such as rain, temperature, and abundant snow-fall, gives rise to an avalanche of extraordinary size, its superior momentum will carry it beyond the limits attained by its predecessors, and sweep forward the accumulations of many years concentric with others of like magnitude into a single mass. A succession of these irregularities will obviously produce results corresponding in every particular with the observed phenomena.

What we may call century avalanches, as distinguished from annual, are conceived and nourished on cool mountain sides 10,000 or 12,000 feet in height, where the snow falling from winter to winter will not slip, and where the exposure and temperature are such that it will not always melt off in summer. Snow accumulated under these conditions may linger without seeming to greatly change for years, until some slowly organized group of causes, such as temperature, abundance of snow, condition of snow, or the mere occurrence of an earthquake, launches the grand mass. In swooping down the mountain flanks they usually strip off the forest trees in their way, as well as the soil on which they were growing.

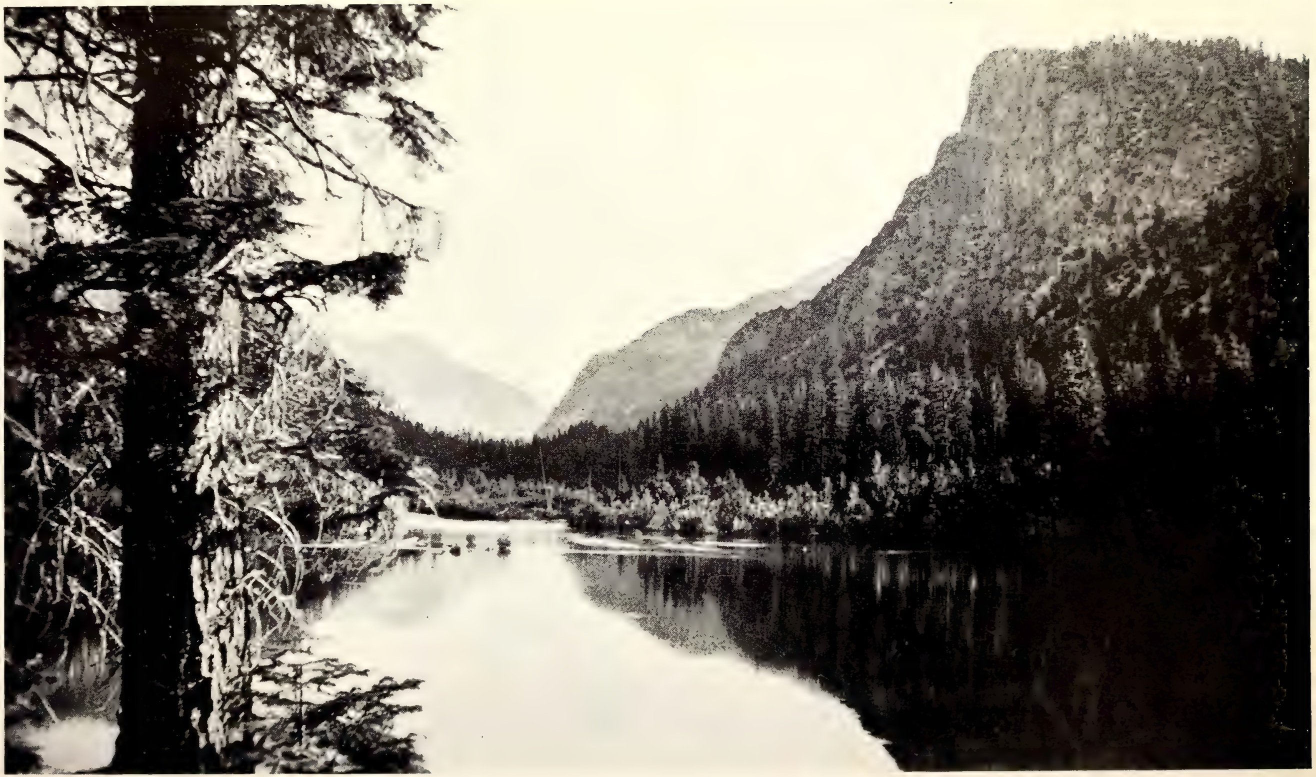
Some of these avalanche pathways are 200 yards wide, and extend from the upper limit of the tree-line to the bottom of the valleys. They are all well "blazed" on both sides by descending trunks, many of which carry sharp stones clutched in their up-torn roots. The height of these "blazes" on the trees bordering the avalanche gap measures the depth of the avalanche at the sides, while in rare instances some noble silver-fir is found standing out in the channel, the only tree sufficiently strong to withstand the mighty onset; the scars upon which, or its broken branches, recording the depth of the current. The ages of the trees show that some of these colossal avalanches occur only once in a century, or at still wider intervals. These avalanches are by far the most powerful of the three species, although from the rarity of their occurrence and the narrowness of the zone in which they find climatic conditions suited to their development, the sum of the denudation accomplished by them is less than that of either of the others.

We have seen that water in the condition of rain, dew, vapor, and melting snow, combined with air, acts with more or less efficiency in corroding the whole mountain surface, thus preparing it for the more obviously mechanical action of winds, rivers, and avalanches. Running water is usually regarded as the most influential of all denuding agents. Those regions of the globe first laid bare by the melting of the ice-



JUNCTION PASS, JOHN MUIR TRAIL (ELEVATION 13,300 FT.)
Note the Sierra Club pack-train (1916)—Mount Williamson in center

Photo by Marion R. Parsons



UPPER KERN LAKE AND TOWER ROCK, KERN RIVER CAÑON
In proposed extension of Sequoia National Park

Photo by Gladys Payne

sheet present no unchanged glaciated surfaces from which, measuring down, we may estimate the amount of post-glacial denudation. The streams of these old eroded countries are said by the poets to "go on forever," and the conceptions of some geologists concerning them are scarcely less vague.

Beginning at the foot of the Sierra glaciers, and following the torrents that rush out from beneath them down the valleys, we find that the rocks over which they flow are weathered gradually, and increasingly, the farther we descend; showing that the streams in coming into existence grew like trees from the foot of the range upward, gradually ramifying higher and wider as the ice-sheet was withdrawn—some of the topmost branchlets being still in process of formation.

Rivers are usually regarded as irregular branching strips of running water, shaped somewhat like a tree stripped of its leaves. As far as more striking features and effects are concerned, the comparison is a good one; for in tracing rivers to their fountains we observe that as their branches divide and redivide, they speedily become silent and inconspicuous, and apparently channelless; yet it is a mistake to suppose that streams really terminate where they become too small to sing out audibly, or erode distinct channels. When we stoop down and closely examine any portion of a mountain surface during the progress of a rain-storm, we perceive minute water-twigs that continue to bifurcate until like netted veins of leaves the innumerable currentlets disappear in a broad universal sheet.

It would appear, therefore, that rivers more nearly resemble certain gigantic *algae* with naked stalks, and branches webbed into a flat *thallus*. The long unbranched stalks run through the dry foothills; the webbed branches frequently overspread the whole surface of the snowy and rainy alpine and middle regions, as well as every moraine, bog, and *névé* bank. The gently gliding rain-*thallus* fills up small pits as lakelets and carries away minute specks of dust and mica. Larger sand-grains are overflowed without being moved unless the surface be steeply inclined, while the rough grains of quartz, hornblende, and feldspar, into which granite crumbles, form obstacles around which it passes in curves. Where the currentlets concentrate into small rills, these larger chips and crystals are rolled over and over, or swept forward partly suspended, just as dust and sand-grains are by the wind.

The transporting power of steeply inclined torrents is far greater than is commonly supposed. Stones weighing several tons are swept down steep cañon gorges and spread in rugged deltas at their mouths, as if they had been floated and stranded like blocks of wood. The denudation of gorges by the friction of the boulders thus urged gratingly along their channels is often quite marked.

Strong torrents also denude their channels by the removal of blocks made separable from the solid bed-rock by the development of cleavage planes. Instructive examples of this species of denudation may be studied in the gorges between the upper and lower Yosemite falls and the Tenaya Cañon, four miles above Mirror Lake. This is the most rapid mode of torrent denudation I have yet observed, but its range is narrowly restricted, and its general denuding effects inappreciable.

Water-streams also denude mountains by dissolving them and carrying them away in solution, but the infinite slowness of this action on hard porphyritic granite is strikingly exemplified by the fact that in the upper portion of the middle region granite ice-planed pavements have been flowed upon incessantly since they were laid bare on the breaking up of the glacial winter without being either decomposed, dissolved, or mechanically eroded to the depth of the one-hundredth part of an inch.

Wind-blown dust, mica flakes, sand, and crumbling chips are being incessantly moved to lower levels wherever wind or water flows. But even in the largest mountain rivers the movement of large boulders is comparatively a rare occurrence. When one lies down on a river-bank opposite a boulder-spread incline and listens patiently for a day or two, a dull thumping sound may occasionally be heard from the shifting of a boulder, but in ordinary times few streams do much boulder work; all the more easily moved blocks having been adjusted and readjusted during freshets, when the current was many times more powerful. All the channels of Sierra streams are subjected to the test action of at least one freshet per season, on the melting of the winter snow, when all weakly constructed dams and drift-heaps are broken up and re-formed.

It is a fact of great geological interest that only that portion of the general *detritus* of post-glacial denudation—that is, in the form of mud, sand, fine gravel, and matter held in solution—has ever at any time been carried entirely out of the range into the plains or ocean. In the cañon of the Tuolumne River, we find that the chain of lake basins which stretch along the bottom from the base of Mount Lyell to the Hetch-Hetchy Valley are filled with *detritus,* through the midst of which the river flows; but the washed boulders, which form a large portion of this *detritus,* instead of being constantly pushed forward from basin to basin, lie still for centuries at a time, as is strikingly demonstrated by an undisturbed growth of immense sugar-pines and firs inhabiting the river-banks. But the presence of these trees upon water-washed boulders only shows that no displacement has been effected among them for a few centuries. They still must have been swept forward and outspread in some grand flood prior to the planting of these trees. But even this grand old flood of glacial streams, whose magnificent traces occur everywhere on both flanks of the range, *did not remove a single boulder from the higher to the lower Sierra in that section of the range drained by the Tuolumne and Merced, much less into the ocean,* because the lower portion of the Hetch-Hetchy basin, situated about half-way down the western flank, *is still in process of filling up,* and as yet contains only sand and mud to as great a depth as observation can reach in river sections. The river flows slowly through this alluvial deposit and out of the basin *over a lip of solid bed-rock, showing that not a single high Sierra boulder ever passed it since the close of the glacial period;* and the same evidence is still more strikingly exhibited in similarly situated basins in the Merced Valley.

Frost plays a very inferior part in Sierra degradation. The lower half of the range is almost entirely exempt from its disruptive effects, while the upper half is warmly snow-mantled throughout the winter months. At high elevations of from ten to twelve thousand feet, sharp frosts occur in the months of October and November, before much snow has fallen; and where shallow water-currents flow over rocks traversed by open divisional joints, the freezing that ensues forces the blocks apart and produces a ruinous appearance, without effecting much absolute displacement. The blocks thus loosened are, of course, liable to be moved by flood-currents. This action, however, is so limited in range, that the general average result is inappreciable.

Atmospheric weathering has, after all, done more to blur and degrade the glacial features of the Sierra than all other agents combined, because of the universality of its scope. No mountain escapes its decomposing and mechanical effects. The bases of mountains are mostly denuded by streams of water, their summits by streams of air. The winds that sweep the jagged peaks assume magnificent proportions, and effect changes of considerable importance. The smaller particles of disintegration are rolled or shoved to lower levels just as they are by water currents, or they are caught up bodily in strong, passionate gusts, and hurled against trees or higher portions of the surface. The manner in which exposed tree-trunks are thus wind-carved and boulders polished will give some conception of the force with which this agent moves.

Where boulders of a form fitted to shed off snow and rain have settled protectingly upon a polished and striated surface, then the protected portion will, by the erosion and removal of the unprotected surface around it, finally come to form a pedestal for the stone which saved it. Figure 2 shows where a boulder, B, has settled upon and protected from erosion a portion of the original glaciated surface until the pedestal, A, has been formed, the height of which is of course the exact measure of the whole quantity of post-glacial denudation at that point. These boulder pedestals, furnishing so admirable a means of gauging atmospheric erosion, occur

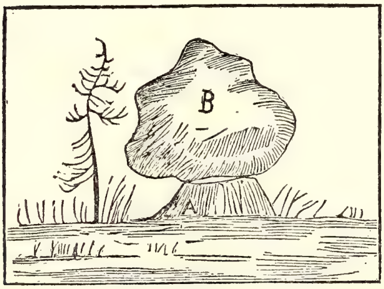


FIG. 2.

throughout the middle granitic region in considerable numbers: some with their protecting boulders still poised in place, others naked, their boulders having rolled off on account of the stool having been eroded until too small for them to balance upon. It is because of this simple action that all very old, deeply weathered ridges and slopes are boulderless, Nature having thus leisurely rolled them off, giving each a whirling impulse as it fell from its pedestal once in hundreds or thousands of years.

Moutonnéed rock forms shaped like Figure 3 are abundant in the middle granitic region. They frequently wear a single pine, jauntily wind-slanted, like a feather in a cap, and a single large boulder, poised by the receding ice-sheet, that often produces an impression of having been thus placed artificially, exciting the curiosity of the most apathetic mountaineer. Their occurrence always shows that the surfaces they are resting upon are not yet deeply eroded.

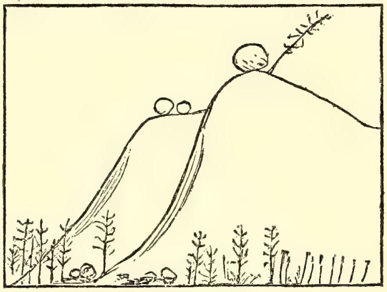


Fig. 3.

Ice-planed veins of quartz and feldspar are frequently weathered into relief by the superior resistance they offer to erosion, but they seldom attain a greater height than three or four inches ere they become weather-cracked and lose their glacial polish, thus becoming useless as means of gauging denudation. Ice-burnished feldspar crystals are brought into relief in the same manner to the height of about an inch, and are available to this extent in determining denudation over large areas in the upper portion of the middle region.

This brief survey of the various forces incessantly or occasionally at work wasting the Sierra surface would at first lead us to suppose that the sum total of the denudation must be enormous; but, on the contrary, so indestructible are the Sierra rocks, and so brief has been the period through which they have been exposed to these agents, that the general result is found to be comparatively insignificant. The unaltered polished areas constituting so considerable a portion of the upper and middle regions have not been denuded the one-hundredth part of an inch. Farther down measuring tablets abound bearing the signature of the ice. The amount of torrential and avalanchial denudation is also certainly estimated within narrow limits by measuring down from the unchanged glaciated surfaces lining their banks. Farther down the range, where the polished surfaces disappear, we may still reach a fair approximation by the height of pot-holes drilled into the walls of gorges, and by the forms of the bottoms of the valleys containing these gorges, and by the shape and condition of the general features.

Summing up these results, we find that the average quantity of post-glacial denudation in the upper half of the range, embracing a zone twenty-five or thirty miles wide, probably does not exceed a depth of three inches. That of the lower half has evidently been much greater—probably several feet—but certainly not so much as radically to alter any of its main features. In that portion of the range where* the depth of glacial denudation exceeds a mile, that of post-glacial denudation is less than a foot.

From its warm base to its cold summit, the physiognomy of the Sierra is still strictly glacial. Rivers have only traced shallow wrinkles, avalanches have made scars, and winds and rains have blurred it, but the change, as a whole, is not greater than that effected on a human countenance by a single year of exposure to common alpine storms.

---

*See study No. IV, in SIERRA CLUB BULLETIN of January, 1918.

SIERRA CLUB

Founded 1892

402 Mills Building, San Francisco, California

Annual Dues: $3.00 (first year, $5.00)

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.

◆

John Muir, President 1892 to 1914

OFFICERS AND COMMITTEES FOR THE YEAR 1918-1919

BOARD OF DIRECTORS

Wm. E. Colby, San Francisco	*President*
Vernon L. Kellogg, Stanford University	*Vice-President*
Marion Randall Parsons, Berkeley	*Treasurer*
J. N. Le Conte, Berkeley	*Secretary*

William Frederic Badè, Berkeley Albert H. Allen, Berkeley
Walter L. Huber, San Francisco Robert M. Price, Reno, Nevada
Clair S. Tappaan, Los Angeles

HONORARY VICE-PRESIDENTS

James Bryce, London, England
Henry S. Graves, Washington, D. C.
Robert Underwood Johnson, New York City
David Starr Jordan, Stanford University
J. Horace McFarland, Harrisburg, Pennsylvania
Stephen T. Mather, Washington, D. C.
Enos A. Mills, Estes Park, Colorado

COMMITTEES

Outing Committee: William E. Colby *(Chairman and Manager)*, Clair S. Tappaan *(Assistant Manager)*, Joseph N. Le Conte.

Committee on Local Walks: Fred R. Parker *(Chairman)*, A. E. Neuenburg, Leslie Gardner, Dozier Finley, Wm. C. Fankhauser.

Committee on Le Conte and Parsons Memorial Lodges: Joseph N. Le Conte *(Chairman)*, Marion Randall Parsons, Robert M. Price.

Auditing Committee: William F. Badè *(Chairman)*, Walter L. Huber, Robert M. Price.

Librarian: Wallace Bradford.

Southern California Section Executive Committee: Phil S. Bernays *(Chairman,* 315 W. 3rd Street, Los Angeles), Chas. J. Fox *(Secretary)*, Benjamin W. Fenton *(Treasurer)*, Mabelle McCalla *(Assistant Secretary)*, Mrs. Henry Braun, Mary F. Kellogg, Ernest Dawson, Carrie E. Tracy, Lloyd B. Austin.

◆

SIERRA CLUB BULLETIN

Published annually for the members

EDITORIAL BOARD

William F. Badè	*Editor*
Marion Randall Parsons	*Associate Editor and Book Reviews*
William E. Colby	*Notes and Correspondence*
Walter Mulford	*Forestry Notes*

Albert H. Allen, Francis P. Farquhar
Walter L. Huber, William T. Goldsborough, Joseph N. Le Conte,
Elliott McAllister, Elizabeth M. Badè

EDITORIALS

◆

Grove Karl Gilbert*[*] The passing of Dr. Gilbert after almost seventy-five years of activity deprives geological science of one of its ablest and most honored representatives. It is permitted to few men to leave an equally enviable record. To an unusual degree his work was distinguished by keenness of observation, by depth of penetration, by soundness in induction, and by clarity of exposition. It is doubtful whether the products of any other geologist of our day will escape revision at the hands of future research to a degree equal to the writings of Grove Karl Gilbert. And yet this is not assignable to limitation of field, or to simplicity of phenomena, or to restriction in treatment. The range of his inquiries was wide, his special subjects often embraced intricate phenomena, while his method was acutely analytical and his treatment tended always to bring into declared form the basal principles that underlay the phenomena in hand.

In the literature of our science the laccolith will doubtless always be associated with the name of Gilbert. In its distinctness as a type, in its uniqueness of character, and in the definite place it was given at once by common consent, one may almost fancy a figurative resemblance between the laccolith and its discoverer and expositor. Gilbert's monographs on the Henry Mountains and on Lake Bonneville will long stand as unexcelled models of monograph treatment. His contributions to physiographic evolution, particularly his analysis of the processes that end in base-leveling, link his name with that of Powell, and give to these two close friends a unique place as joint leaders in interpreting morphologic processes. Glacial and hydraulic phenomena were also fields in which Gilbert's powers as an investigator and expositor were signally displayed.

In accuracy of delineation, in clearness of statement, and in grace of diction Gilbert's contributions are certain long to stand as models of the first order. His personality was of the noblest type; he was a charming companion in the field; he was a trusted counselor in the study. The high place he has held in the esteem of co-workers is quite certain to merge into an even higher permanent place to be accorded him by the mature judgment of the future.

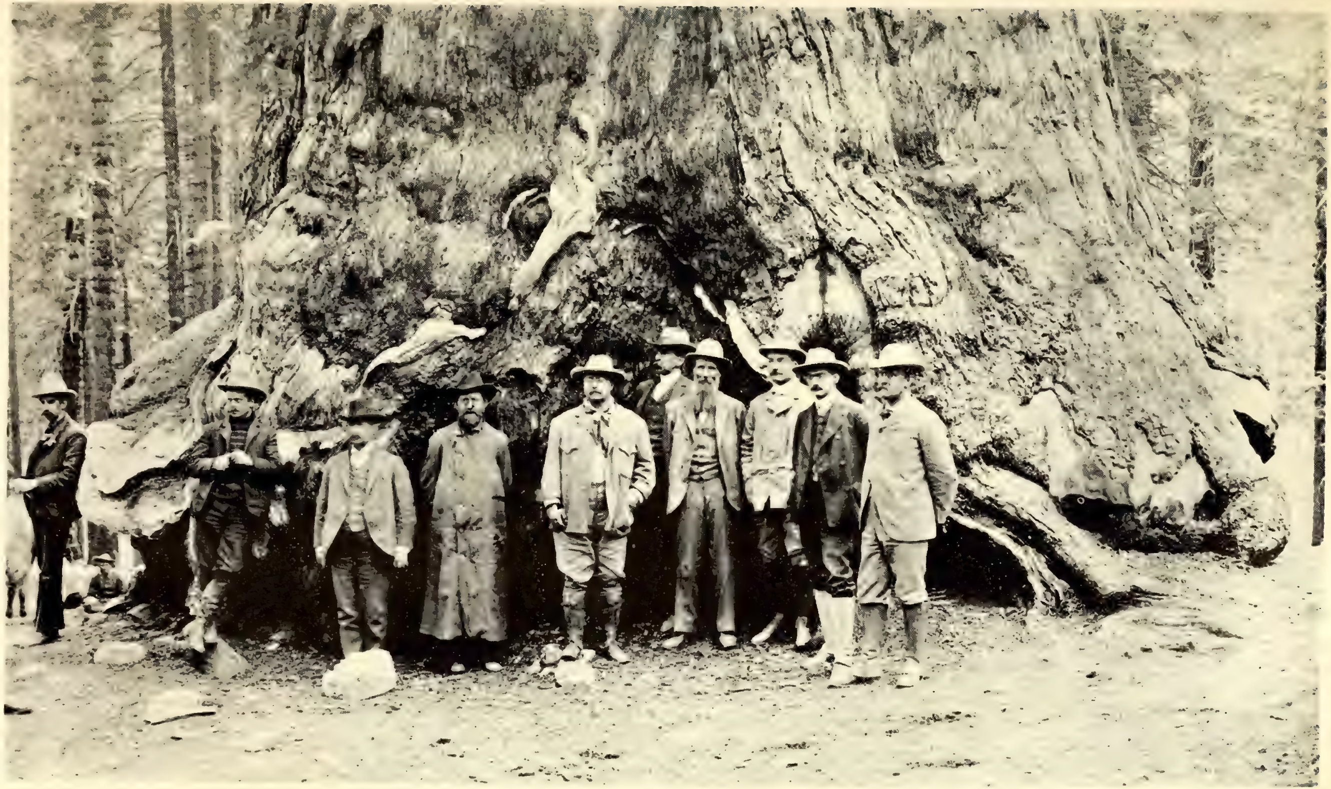
T. C. C.

⁂

Theodore Roosevelt The new year had scarcely begun when the sad news was flashed around the world that America's most distinguished citizen had crossed the last divide. Respected and admired throughout the civilized world, Theodore Roosevelt had become not

---

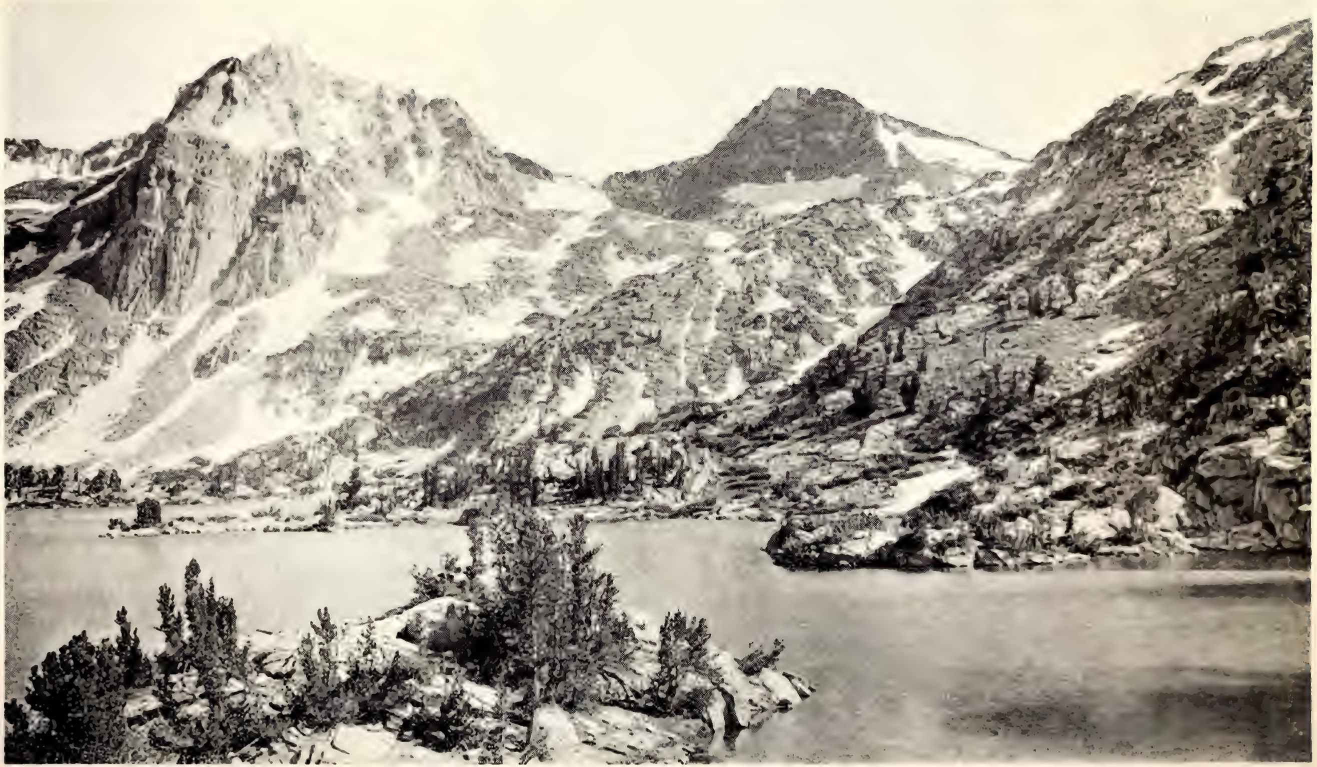
[*] Reprinted from *The Journal of Geology,* Vol. XXVI, No. 4, May-June, 1918.



PRESIDENT ROOSEVELT AT THE BASE OF THE GRIZZLY GIANT, MARIPOSA GROVE

Right to left: Benjamin Ide Wheeler, Private Secretary Loeb, Nicholas Murray Butler, John Muir, Dr. Rixey, Theodore Roosevelt, Governor Pardee, Secretary of the Navy Moody, Secret Service Men (1904)

Photo by J. N. Le Conte



RAE LAKE, HEADWATERS OF SOUTH FORK OF KINGS RIVER
In proposed extension of Sequoia National Park

Photo by Robert L. Lipman

only a national, but an international figure. Never before has it happened in the English-speaking world that a man's initials, like the familiar "T. R.," could be used anywhere without fear of misunderstanding. The charm, force, and vividness of his personality were unforgettable to all who came into contact with him, and he possessed the power of winning personal loyalty more than any other leader who has appeared in American public life.

Roosevelt's activities were too manifold even for a summary editorial review. But we must not leave unmentioned the fact that he was an ideal outdoor man. The very name and organization of his famous "Rough Riders" was an echo from the western plains where he chose for a time to live the life of a ranchman. Though frail in body during his boyhood, he developed a surprisingly vigorous physique by life in the open and by carefully planned exercises. As a big-game hunter, explorer, and naturalist he has achieved lasting distinction. It is to be feared that the last of his great expeditions, the one which had for its object the exploration of a South American river now bearing his name, so undermined his health that it became the indirect cause of his untimely death.

Roosevelt was a man of superb strength, courage, and energy. Who else than he could have written more than forty books while engaging in activities that would have taxed the strength of half a dozen men? "I wish to preach," he wrote years ago, "not the doctrine of ignoble ease, but the doctrine of the strenuous life, the life of toil and effort, of labor and strife; to preach that highest form of success which comes not to the man who desires mere easy peace, but to the man who does not shrink from danger, from hardship, or from bitter toil, and who out of these wins the splendid ultimate triumph." This is the man whom Europe chooses to consider the finest embodiment of American manhood! Fortunate is the country of which such a citizen can be considered typical, even though we know that he was so exceptionally and gigantically American that he has left no peer among us. W. F. B.

∴

ROOSEVELT NATIONAL PARK There has been before Congress for some time a proposal to enlarge the Sequoia National Park so as to include the Kings and Kern River cañons and the wonderfully picturesque High Sierra watershed in which the tributaries of these rivers have their source. On account of the opposition of cattle and timber interests, especially those which center around Fresno, it has been difficult to secure Congressional consideration of this project. The death of Theodore Roosevelt and the unique service he rendered to this country in the conservation of its natural resources suggested to a number of men in public life the propriety of naming the enlarged park as a memorial for him. Senator Phelan and Congressman Elston accordingly introduced bills to that effect. The Senate immediately passed it with enthusiasm, but cattle and timber interests, as well as the negative action of the Forest Service in asking for additional time to investigate (whereas they have already had five years in which to acquire this information), have managed to delay action in the House of Representatives. Some, at least, of the sudden show of affection for the name Sequoia is known to have been deliberately stimulated by a concealed opposition. While it is a sound policy in principle not to change a name like Sequoia for that of a man, this surely is one of the cases where the principle is honored in the breach. We ought to recall that Roosevelt, in 1908, called the famous Conference of Governors at the White House in order to consider and provide for the conservation of our natural resources, and at this conference the importance of national parks was emphasized. "We want to take action that will prevent the advent of a woodless age," he said in his remarkable opening address. Some idea of what he did may be gathered from the fact that near the close of his administration in 1908 there were 165 national forests, of which Roosevelt had created 143, and seven additional ones were created by him during the remainder of his administration. In other words, Roosevelt increased the national forest area from 46,000,000 to 194,000,000 acres—four times the original area and ten million acres to spare! In the face of facts like these one might expect all forest and park lovers to have patriotic reasons for taking the lead in securing the consummation of a project like the setting aside of the Roosevelt National Park.

But these are not the only reasons that can be urged for the association of Roosevelt's name with this measure. It was he who found the way and set the example of creating by Presidential proclamation twenty-three national monuments, whose unique, beautiful, and in some cases awe-inspiring, scenic features are now a precious possession of the American people. Other Presidents followed in his footsteps until now we have at least thirty-six of these monuments. But those created by Roosevelt constitute both in number and in character the most valuable part. Among them was the Grand Cañon of the Colorado, regarded by some foreign experts as the greatest scenic wonder in the world. If Roosevelt had not taken this action we probably would never have been able to enroll it among our national parks, as has just been done by act of Congress.

Finally, Roosevelt during his administration secured the establishment of five additional national parks, comprising an area of 390,000 acres, and established the precedent of urging the welfare of national parks upon the attention of Congress in his messages. No other man in American public life has done half as much to preserve for the use and enjoyment of the American people resources of forests, water-power, and scenery which are now an invaluable asset of our national wealth.

Nor let us overlook what Roosevelt did by his foresight to win the great war, when, at the Conference of Governors in 1908, he sounded a trumpet-call to the nation in these words: "Finally, let us remember that the conservation of our natural resources, though the gravest problem of today, is yet but part of another and greater problem to which this nation is not yet awake, but to which it will awake in time, and with which it must hereafter grapple if it is to live—the problem of national efficiency, the patriotic duty of insuring the safety and continuance of the nation."

There has not been in the past, and we may question whether there can arise in the future, a man who so richly deserves to be memorialized in the establishment of a national park. W. F. B.

∴

THE NATIONAL PARK SERVICE After reading the 1918 report of the Director of the National Park Service, we feel moved to express our warmest appreciation of the able and far-sighted management of our national playgrounds by Director Stephen T. Mather. Altogether admirable was the firmness with which the Interior Department refused all applications for sheep-grazing in the parks. The more determined of the park invaders, cloaking their hope of private gain under a show of public service with mutton and wool, even applied to the Food Administration for aid in opening Rainier National Park to sheep. But Mr. Hoover promptly concurred in the view that "the Government's policy should be to decline absolutely all such requests." It is a well-known fact that even a short period of grazing by sheep completely destroys many species of beautiful wild flowers that are the glory of our mountain parks. Crater Lake Park, as Mr. Mather points out, has not recovered its extinguished flora after a lapse of twenty-five years. The damage done there by sheep is irreparable.

Among features of the service which are deserving of special commendation and public support is the effort to turn the parks to practical account in the public schools. This is being done in classes of geography and general science through the medium of literature and picture portfolios, furnished by the National Park Service. A beginning has also been made with traveling exhibits of national park pictures, motion-picture films, and lantern-slides. The need of restoring and preserving as much as possible the wild-life resources of the national parks has also received Mr. Mather's careful attention. The presence of an abundant fauna greatly enhances the recreational appeal which a people's playground makes to the traveling public, and thus increases its potential economic value as well.

A fact of good augury for the steady growth and development of our national park system is the Congressional authorization of the Secretary of the Interior to accept gifts of land areas and other property that will improve the parks. A considerable number of important gifts for such purposes have already been made, notably that of the old Tioga Road, in the Yosemite Park, and a section of the Giant Forest—both of them invaluable additions to the parks. We are so filled with enthusiasm over the showing made by the National Park Service during the past year that we ardently hope Congress will speedily transfer to this service the ten national monuments which by a strange anomaly still remain under the control of another department. W. F. B.

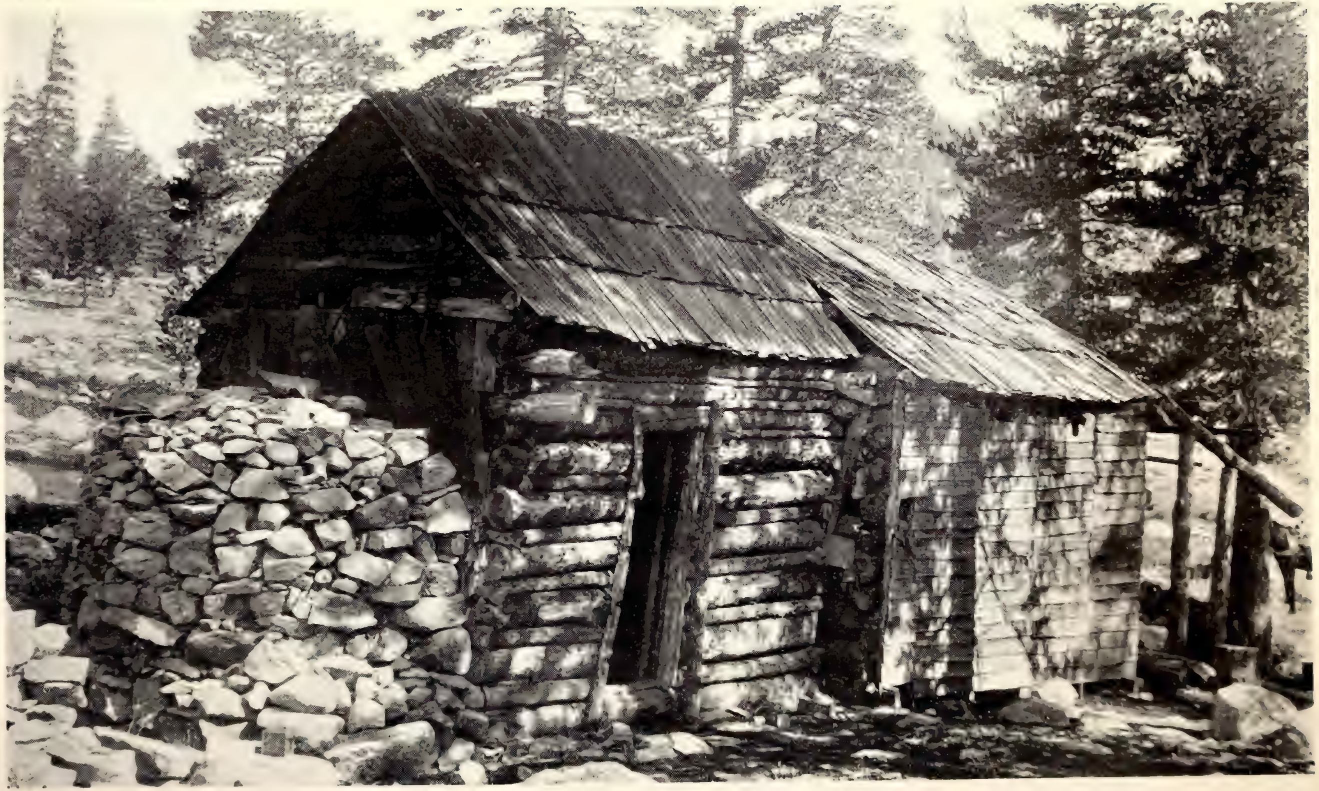
⁂

BEQUEST TO THE SIERRA CLUB

Lieutenant Robert S. Gillett, a member of the club, and resident of Hartford, Connecticut, gave his life for his country in an airplane accident in Texas, September 17, 1918. We are proud to have had so brave a spirit as his on our honor roll. He had a real love for the Sierra, and his widow writes that his admiration for John Muir was limitless. His will provides for a bequest of one thousand dollars to the Sierra Club, to be used for the maintenance of the John Muir Trail or toward the upkeep of the Parsons Memorial Lodge in Tuolumne Meadows.

It is worthy of note that the two bequests which have been made to the club have come from those who reside far from the Sierra. Edward Whymper, the world-famed mountaineer of England, left the club fifty pounds in his will, and now this recent bequest comes from one who resided across the continent. Can it be that these generous non-residents have a greater love and appreciation of the Sierra and of the work the club is striving to accomplish than those of us who live in California? The Appalachian Club has received many and substantial bequests and gifts from its members. Perhaps the thought has not occurred to our own members yet. There are a multitude of worthy objects in line with the work of the club, to which such gifts, large or small, could be devoted. W. E. C.

FIRST LIEUTENANT ROBERT S. GILLETT
1895-1918
(See editorial, page 434)



LAMBERT'S OLD CABIN

On Soda Springs property (now controlled by Sierra Club), Tuolumne Meadows, Yosemite National Park (1894)

Photo by P. T. Lukens

REPORTS OF COMMITTEES

Treasurer's Report

To the Directors of the Sierra Club:

I beg to submit the following report on the finances of the Sierra Club covering the period from January 1, 1918, to January 1, 1919:

Balance cash on hand January 1, 1918		$2,658.57
Receipts during the year:		
Dues from members	$3,664.75	
Advertisements in Bulletin	350.00	
Interest on Permanent Fund	250.00	
Rent of room 403	50.00	
Sale of Bulletins	21.60	
Sale of club pins	19.50	
Interest on savings accounts	41.24	
Interest on Liberty Bond	14.90	
Increased valuation of War Savings Stamps	6.00	
Sundry small receipts	50.75	
		$4,468.75
		$7,127.32
Expenditures during the year:		
Rent of rooms 402 and 403	$ 720.00	
Salary of Assistant Secretary	930.00	
Printing, postage and delivery of Bulletin No. 53	1,505.09	
Amount paid to Southern California Section	400.75	
Office expenses, postage, stationery, etc	233.87	
Telephone and telegraph service	129.89	
Le Conte Memorial Lodge	165.90	
Parsons Memorial Lodge	378.51	
Taxes	51.44	
Local walks, printing, etc.	50.00	
Reunions	48.10	
Dues to other clubs	38.00	
Debit and exchange	9.00	
Interest debit on Liberty Bond	6.87	
Miscellaneous small expenses	45.45	
Total expenses	$4,712.87	
Cash on hand January 1, 1919	2,414.45	
		$7,127.32

Cash on hand distributed as follows:

In First National Bank	$ 579.75
In Security Savings Bank	263.19
In Savings Union Bank and Trust Co.	698.51
In War Savings Stamps	848.00
Cash in Secretary's drawer	25.00
	$2,414.45

Permanent Fund:

Balance in fund January 1, 1918	$2,107.42	
New life memberships	150.00	
Interest to date	52.32	
		$2,309.74
Interest withdrawn for Parsons Lodge		250.00
		$2,059.74

Distributed as follows:

Bond of the Third Liberty Loan	$1,000.00	
Bond of the Fourth Liberty Loan	1,000.00	
Cash in Security Savings Bank	59.74	
		$2,059.74

Respectfully submitted,
Joseph N. Le Conte, Treasurer

⁂

Parsons Memorial Lodge

custodian's report for 1918

Tuolumne Meadows, Yosemite National Park

I reached the Lodge July 5th by horse over the Tenaya Trail. The club is much indebted to Mr. Lewis, the superintendent of the Park, for assistance in enabling me to reach the lodge at this date, and also for many other favors. The lodge and log hut had been broken open during the winter, and the whole place, inside and out, was in a bad state of disorder.

Travel began on the Tioga Road July 6th, the first cars reporting the only snow to be a little patch at the summit. The river was then very low and there was hardly any snow on the mountain peaks. Weather conditions have been ideal all summer—cold frosty nights, ice in the teakettle almost any morning, warm sunny days, and the mosquitoes all gone by July 10th. During my stay we had five thunder and rainstorms, the lodge affording dry shelter to all near-by campers.

Our visitors numbered one thousand, from July 5th to closing day, September 18th. Some of them camped for a while near us, and all were interested in what I could tell them about the trails, roads, fishing and the mountain peaks. Not quite one hundred were members of the club. The Soda Springs are always appreciated; a number of people told me they made the trip in this year solely for the benefits of the water. It was often suggested that a store should be maintained in the meadows, that all the trails should be carefully marked, and that horses should be kept for rent at reasonable prices. I recommend that the club build gateways over the Tioga Road where it enters and leaves club property.

Vivian Yarbrough,
Sacramento, Cal.

NOTES AND CORRESPONDENCE

Geological Survey, Dept. Mines, Sydney, New South Wales,
April 30, 1913.

Wm. E. Colby, Sierra Club.

Dear Mr. Colby: Very many thanks for your latest number of the Sierra Club Bulletin. Each time it comes along the many beautiful illustrations carry me back to the time when I spent a most delightful holiday in your Sierran region. In the midst of magnificent scenery and in company with one of your noblest natures, I learned to love every inch of the great Sierras. The man I refer to is Dr. G. K. Gilbert, a man worthy surely of rank with your John Muir. He it was who taught me the names of all your forest trees and their geographical distribution. He it was who read to us of a night under the forest canopy of the deeds of King in the Sierra, and who told us of the lives of Galen Clark, John Muir in the Sierras and of John W. Powell in the Grand Cañon. He it was who showed me the paraboloid spider's web in Wawona, who showed me the fault scarp under Mt. Dana, who urged me with Willard D. Johnson to behold the panorama from the summit of Mt. Davidson, who showed me the glacial polish of the Tuolumne, the peculiarities of Fairview and Lambert's Dome, the view sublime from Cloud's Rest, and a thousand other things equally glorious and enchanting.

To me in quiet moments often come the rustle of the aspen leaves, the scent of the fir and pine forests, the stateliness of the Sequoias, the rush of the San Joaquin torrents, the peculiar cries and calls of the woodpecker and the jay, the splash of the water-ouzel, the innocent appearance of the poison oak, the overwhelming majesty of the Yosemite walls and the glory of the mountain outlooks. I am, yours sincerely,

E. C. Andrews

[Ed. Note: Dr. Andrews is one of the foremost glacialogists of the world.]

∴

CLUB ALPIN FRANÇAIS

Reconnu d'utilité publique par décret du 31 Mars, 1882

Rue du Bac, 30, Paris, le 4 Juillet, 1918
(Independence Day)

Monsieur et Très Honoré Président,

Nous avons bien reçu, en son temps, votre lettre du 3 Janvier, et nous vous remercions bien vivement de votre adhésion au Congrès de l'Alpinisme. Nous sommes heureux de voir votre nom figurer parmi nos

Présidents d'Honneur. Le concours de l'Amerique est tout particulièrement apprécié, et nous avons donc maintenant avec nous:

—Sierra Club
—American Alpine Club
—Alpine Club of Canada

Nous comptons que vous pourrez nous envoyer des Délégués pour représenter votre association, lorsque la Réunion sera fixé. Mais pour cela il faut d'abord obtenir la victoire contre les Barbares, nous avons la plus grande confiance, vos armées arrivent en grand nombre pour combattre avec nous, et déja nous admirons leur vaillance.

Nous fétons aujourd'hui avec vous l'*Independence Day,* le Drapeau étoilé flotte à coté du Drapeau tricolore, la joie est dans nos coeurs! C'est l'aurore de la victoire! C'est ainsi que j'ai désiré vous écrire en ce jour qui consacre l'étroite union de nos armées et de nos peuples.

Nous étions allés chez vous avec notre La Fayette pour défendre la *liberté de l'Amerique,* vous venez aujourd'hui avec nous défendre la *liberté du monde!*

Je vous prie de recevoir, très honoré Président, l'assurance de nos meilleurs et distingués sentiments.

Baron F. Gabet
Vice-Président du Club Alpin Français
President du Congrès de l'Alpinisme

[TRANSLATION]

FRENCH ALPINE CLUB

Recognized as of Public Service by the Decree of March 31, 1882

30 Rue du Bac, Paris, July 4, 1918
(Independence Day)

Sir and Highly Honored President:

We received in due time your letter of the 3d of January, and we thank you warmly for your consent to participate in the Alpine Congress. We are happy to see your name take its place among our Honorary Presidents. The participation of America is exceptionally appreciated, and we have, so far, with us:—The Sierra Club, the American Alpine Club, and the Alpine Club of Canada.

We are counting on your being able to send delegates to represent your organization, when the date for the meeting shall be fixed. But for that it first is necessary to win the victory over the Barbarians. We have the utmost confidence; your armies are arriving in great number to fight along with us, and already we are admiring their valor.

We are celebrating today, with you, Independence Day; the Starry Banner floats beside the Tricolor, and joy is in our hearts. It is the dawn of victory! It is in view of these circumstances that I have desired to write you on this day, which consecrates the intimate union of our armies and our peoples.

We had gone to your country wth our La Fayette to defend the *liberty of America;* today you are coming with us to defend *the liberty of the world.*

Accept, I pray you, Mr. President, the assurance of our best and highest regards.

Baron F. Gabet
Vice-President of the French Alpine Club
President of the Alpine Congress

Paris, the 6th of December, 1918

Sir and Highly Honored President:

We have the honor to forward to you herewith a *List of Committees* which are to be organized for the Alpine Congress. The complete victory won by the Allies against the Central Empires enables us now to foresee that the Congress can be held in the course of a few months. We shall then be able to celebrate together the liberty of the world in paying a glorious tribute to our valiant armies that have smitten to earth the Barbarians.

Accept, Mr. President, the expression of my high regard.

The President of the Alpine Congress
Baron F. Gabet

∴

Dear Mr. Colby:

Please add to the Sierra Club's records a note to the effect that Mt. Thompson—latitude 37° 08.5′ N., longitude 118° 37′ W., Mt. Goddard Quadrangle—elevation 13,494 feet, was ascended by Clarence H. Rhudy and H. F. Katzenbach during the summer of 1909. So far as known, this is the first ascent of Mt. Thompson.

I also wish to call your attention to a peak almost directly west of Mt. Thompson about two and one-half miles, being in latitude 37° 8½′ N., longitude 118° 04′ W., and having an elevation of 12,224 feet. This peak is very well known locally as Mt. Hurd, although it has so far remained on the Mt. Goddard Quadrangle of the U. S. Geological Survey. It stands free of the crest of the Sierra Nevada Mountains directly above South Lake, from which it has a very striking appearance. Its name is derived from the late Mr. H. C. Hurd, an engineer who, while making certain explorations of this region, climbed it in 1906. So far as known, this was the first ascent. It was again ascended in 1909 by Clarence H. Rhudy and James Kevil. Can you not take steps to have this name placed on the Geological Survey Quadrangle?

Very sincerely,
W. L. Huber

January 6, 1919.

∴

ASSOCIATED MOUNTAINEERING CLUBS OF NORTH AMERICA

The membership of the Bureau for 1918 consisted of the following organizations, comprising over 20,000 individuals:

American Alpine Club, Philadelphia and New York.
American Game Protective Association, New York.

American Museum of Natural History, New York.
Adirondack Camp and Trail Club, Lake Placid Club, N. Y.
Appalachian Mountain Club, Boston and New York.
British Columbia Mountaineering Club, Vancouver.
Colorado Mountain Club, Denver.
Field and Forest Club, Boston.
Fresh Air Club, New York.
Geographic Society of Chicago.
Geographical Society of Philadelphia.
Green Mountain Club, Rutland, Vermont.
Hawaiian Trail and Mountain Club, Honolulu.
Klahhane Club, Port Angeles, Wash.
Mazamas, Portland, Oregon.
Mountaineers, Seattle and Tacoma.
National Association of Audubon Societies, New York.
National Park Service, Washington.
New York Zoological Society.
Prairie Club, Chicago.
Rocky Mountain Climbers' Club, Boulder, Colorado.
Sagebrush and Pine Club, Yakima, Wash.
Sierra Club, San Francisco and Los Angeles.

The annual Bulletin of the Association was published in May. As very few books on mountaineering were published during the year, many books of travel and outdoor life were sent free of charge for the library of each club or society. Many individual members from all parts of the country have called to inspect the large collection of mountaineering books and photographs in the New York Public Library.

An important feature of the work of the Bureau is co-operation with the National Park Service. First in the hearts of all true mountaineers is the preservation of our finest mountain regions from commercial ruination. In many ways the future welfare of the nation depends on the protection of our forested watersheds, and on the permanent retention of our rich heritage of tree and flower, of bird and animal life. Several of our most wonderful regions have not yet been made national parks; many of our parks should at once be increased in size; others should have sufficient appropriation to insure their proper patrol and development. Mountaineers are often the first to visit new regions of wonder and beauty. Is it not their highest privilege to be foremost in their protection?

LeRoy Jeffers, Secretary
Librarian American Alpine Club, 476 Fifth Ave., New York

⁂

Increased Sheeping Endangers Wild Life

Great pressure is being brought to bear to so change the regulations regarding grazing in the national forests as to allow sheeping in national parks and increased sheeping in national forests. This may sound favorable so far as increased meat supply is concerned, but any one who has seen the deep traces left in sections where sheep have grazed will shudder to think what results are to be expected. Many are the worn-out meadows, deeply gullied, which now testify to the past inroads of herds of sheep, and many the depleted game-covers where the trampling of nests and the destruction of food has reduced upland game birds to the minimum. These are dangerous times, and every conservationist must help form the army of defense needed to save wild life in this emergency when special opportunity to devastate wild-life resources is given the enemy.—*California Fish and Game, April, 1918.*

⁂

The great public service of John Muir was leading the nation, through his writings, to appreciate the grandeur of our mountains and the beauty and variety of their plant and animal life, and the consequent necessity for holding forever as a heritage for all the people the most precious of these great scenic areas. Probably to his leadership more than to that of any other man is due the adoption of the policy of national parks.—*President Van Hise.*

⁂

Yosemite, Cal., October 23, 1918

Dear Mr. Colby:

The mountain lions are growing very fine—and I am very proud of them. They are as tame as kittens, and I rather flatter myself that they always will be. All my little children handle them like kittens, and Gabrielle, my youngest daughter, helps mother and myself to take care of them and takes them out for exercise one by one.

They are about six months old now, and I believe they must weigh over 30 pounds apiece. I am enclosing some postals that were made when they were about twelve days old and some that Mr. Boysen took a few days ago. I will try to have some taken in the group, but do not know whether we will succeed or not, as they are very restless beasts and full of play.

I will send specimens from time to time to the club as they grow. They eat everything that is given to them in the line of cereals, with an exception of cornmeal; but I think it is due to their ignorance that we are at war with Germany and it is necessary to use substitutes. We will break them in to it, as I believe it will be good for them. We do not feed them raw meat at all—just scraps of meat from the table. I wonder if Mr. Enos A. Mills would not give us some suggestions in regard to bringing them up.

With kindest regards to Mrs. Colby, Professor and Mrs. Le Conte and yourself, from Mrs. Sovulewski, kiddies and myself, I remain

Yours very truly,

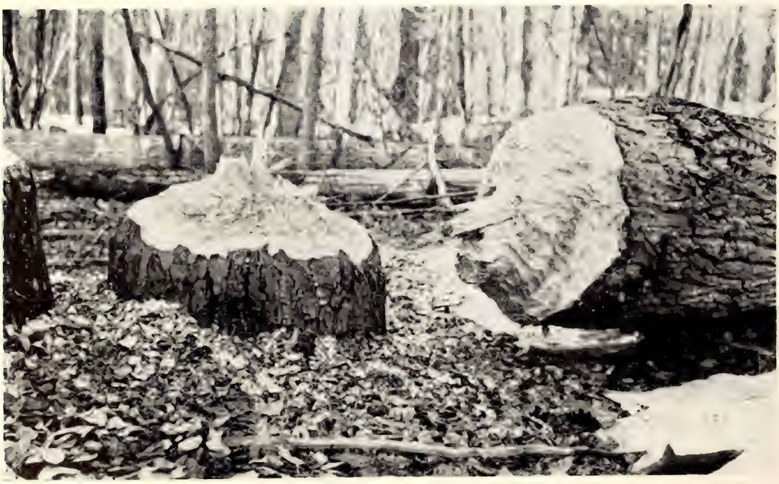
GABRIEL SOVULEWSKI

MOUNTAIN LION CUB TEN DAYS OLD
One of three captured in Yosemite National Park in May, 1918
Photos by Boysen

Mrs. Sovulewski with one of the mountain lion cubs she raised on a bottle in Yosemite Valley

(See page 442)

A PAUSE ABOVE THE WAPITE



A TWO-FOOT COTTONWOOD CUT BY BEAVERS
Note the pile of chips around the stump

78th Battery C. W. A.,
Petawawa, Ont., June 9, 1918

Dear Mrs. Parsons:

I have been a long while answering your letter of March 26th, but the last few months have been the most eventful of a varied life of adventure.

We were a month late in getting away on our trip to the north and so were delayed the whole trip. Had we left Grand Prairie up in Peace River country early in January, as formerly planned, we would have had good ice-traveling after the New Year's thaw. But when we got there a lot of new snow had fallen and was so dry and soft that dogs could do nothing in it; so instead of going up the Wapite, as we intended, on the ice, we had to follow the trail via Beaverlodge and Redwillow settlements, and had to get a team to haul our outfits to the end of civilization, and then we followed a pack trail via Callahoo Lake and struck the Wapite at the junction of Sheep River with the Wapite. We had good going up Sheep River for four days to the cabin built in November; but it was very cold and our grub ran out, and we were pretty tired and worn out from lack of food and exposure when we landed at camp. We found the snow very deep up there and all the game had migrated to a lower altitude, and we had passed many moose on the way up, but now could not get any feed for our dogs. So after a week of fruitless hunting we had to go back down the river for meat for our starving dogs, and hauled it back to base camp up the river. Later we got good going and worked northward along the outer ranges, exploring for sheep and elk, neither of which we found any farther north than we had previously found them. We got into a great caribou country, and for a while never saw less than fifty in a day. These were days of plenty and our dogs got fat. About the middle of March it commenced to thaw and the ice got bad in the rivers inside the mountains, and by the first of April we could only travel at night and early in the morning, and we started back to base camp. On April 14th we left base camp to return to civilization, expecting to make it in about six or seven days, as it was all down hill and ice to go on. But there came a sudden thaw that raised the water and broke up the ice, and at the end of the third day we had only covered twenty-five miles of the 160 and the ice was no longer to be traveled upon, so we built a raft and put our stuff on it; but the river was small and shallow and in many places still bridged over with ice, and we would have to take the raft apart and haul the logs over the ice to open water again. We had two days of that and then a larger flood, and we had to lay up two days while the ice ran past us. The third day we started again and only went a mile or so when we were swept under a log jam and the raft turned completely over, but we rescued everything except our dog harness. For the next few days we never made more than two miles any one day, as we caught up to the ice and the water fell, and it would not run out, just melting slowly from the rear. We were completely out of grub, and, as we had a cache at the forks, we did not want to kill a moose until we absolutely had to, as we had a game warden along with us, but finally we had to do it. But just when we wanted one we could not get it and lived on squirrels and bear-root for a couple of days. When we did get a moose he was the oldest and toughest bull in the province of Alberta and we could not eat it, but boiled large pails of it and drank the broth, which was not very satisfying, and we were getting weaker each day. On the 29th the water started rising rapidly, and on the 30th the ice pulled about fifteen miles. We gave it an hour and followed. That was the most exciting afternoon of the whole trip. The river was running like a millrace and full of rocks and stranded icebergs, and we went over two falls that we could not see on our way up, as the ice was level over them in February. We went under both times, but the prospect of grub ahead cheered us and we only laughed. Rounding a bend there was ice jammed on the right; so we steered for the left, and swinging sharply around the point a big boulder loomed up directly in our path and we struck it head on and the ropes that lashed the front end together parted and the raft spread out like a fan and all our stuff fell through. We caught my sled, which had all our specimens on and most of our equipment, and managed to get it back up on the raft and crosswise of the logs, as the rear end was up on the boulder out of the water. Then I got a rope and got down in the icy water and pulled the logs together and made temporary repairs while cakes of ice striking the rear end threatened to start us on again. With a shove we were away again and poling madly for an eddy on the opposite side a half mile below. We just made it and tied up and took stock of our losses. The game warden had lost everything except his camera and glasses, which he had on his back at the time. All our cooking outfit was gone except one tin plate and a tea-pail and all but one piece of the moose meat. Making all safe again we started on, the poor dogs having all they could do to keep up on the shore. We found the dog-feed pail on a bar and recovered it, but that was all, mile after mile of mad water and ice cakes until our nerves were strained to breaking point and poles were broken or wrenched from our hands, and we would land and get a fresh supply. Just before dark we caught up to the ice again, now piled ten to twelve feet high. Wet and cold, we landed and hung our things up to let the water drip out of them and built a big fire of dry cottonwood, and, supperless, lay down exhausted. In the morning the ice was out of sight, but too much still running to risk rafting; so two of us started at daylight for the cache five miles below. Had to build a small raft to get over to it and bring some back to our side, where we cooked some rice, bacon and cornmeal mush. It was so long since I had had a square meal that two cups of mush made me feel as if I had swallowed a bale of hay, and I could hold no more. The next day we moved down to the cache and added a couple more logs to our raft and ran out into the large rapid-flowing Wapite, and in twenty hours made the hundred miles to Grand Prairie. I came straight to Calgary, as I was late for reporting, and joined the 78th Battery, and a few days later we started for the East, and here I am in uniform at Petawawa, out where all the Canadian artillery train during the summer. It is a beautiful spot to the eye when the sand is not blowing. The Ottawa River, two miles wide here and full of islands, flows by the camp on one side and the smaller Petawawa on the other. Naturally, I don't like the life, but it is not what one likes now; it is what has to be done. A draft is already called, but I missed it. I may be here a month or two yet before getting overseas. Bob Wilkins is in charge of my outfit at Jasper, and I hope some day I may have the pleasure of taking you out for another trip.

Sincerely,
DONALD PHILLIPS

⁂

Wellcroft, Helensburgh, April 9, 1918

Dear Mr. Colby:

By yesterday's mail I received a SIERRA CLUB BULLETIN (Vol. 10, No. 3). No letter came with it, and I am putting you down as the sender. First, I must thank you for it. I see it contains many fine pictures and a lot of articles which should provide interesting reading if one can tear one's self away from the war bulletins.

I see you have a war service record. We of the Scottish Mountaineering Club have such a record. Out of a membership of about 180, some 50 are on service, and about a dozen have been killed. Our president's son, Charles Inglis Clark, was killed last month.

So far, none of your friends have shown up here; but I am expecting them sometime as soon as their more pressing engagements in France have been disposed of. I shall make it my care to give them as good a time as I can, and show them as much of bonnie Scotland as they have a mind to view. Red Cross work, volunteering, and digging in my garden for extra food keep me busy.

With many thanks to you, and greetings to all Sierrans,

Yours truly, J. RENNIE,
Scot. Mtg. Club

(Mr. Rennie is a brother of James Rennie of our Club, and was at one time President of the Scottish Mountaineering Club.)

⁂

Alpine Club, 23 Savile Row, London W., June 10, 1918

Dear Sir:

It has occurred to us that some of the members of your club may be over on this side. Should this be the case we shall be very glad if they will look in here whenever they may find it convenient, and we shall be very much pleased to see them.

Unfortunately, there will be very few of us to welcome them, as hardly anyone comes here except to our general meetings, and these are over until the 15th of October; but they may like to see the club and look at our pictures and library.

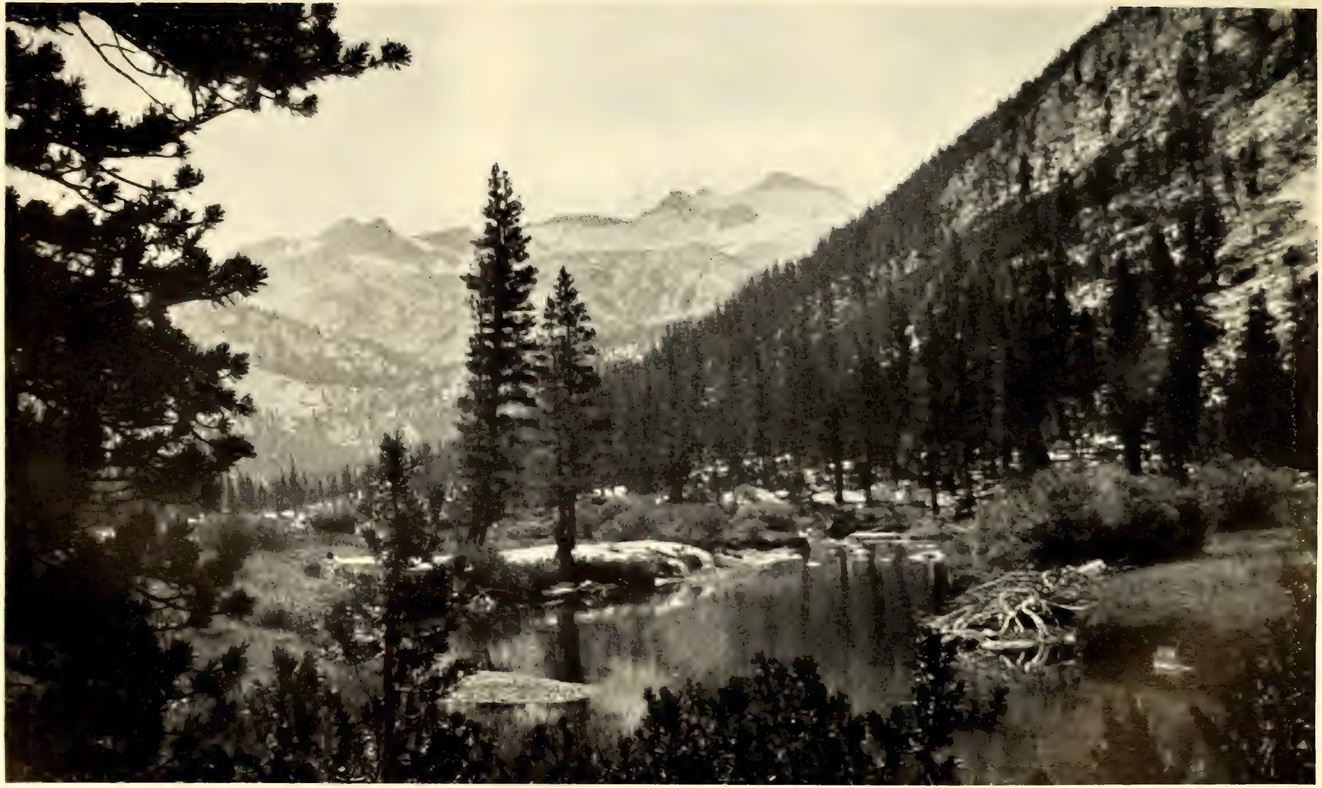
With very hearty greetings, I am

Yours very truly,

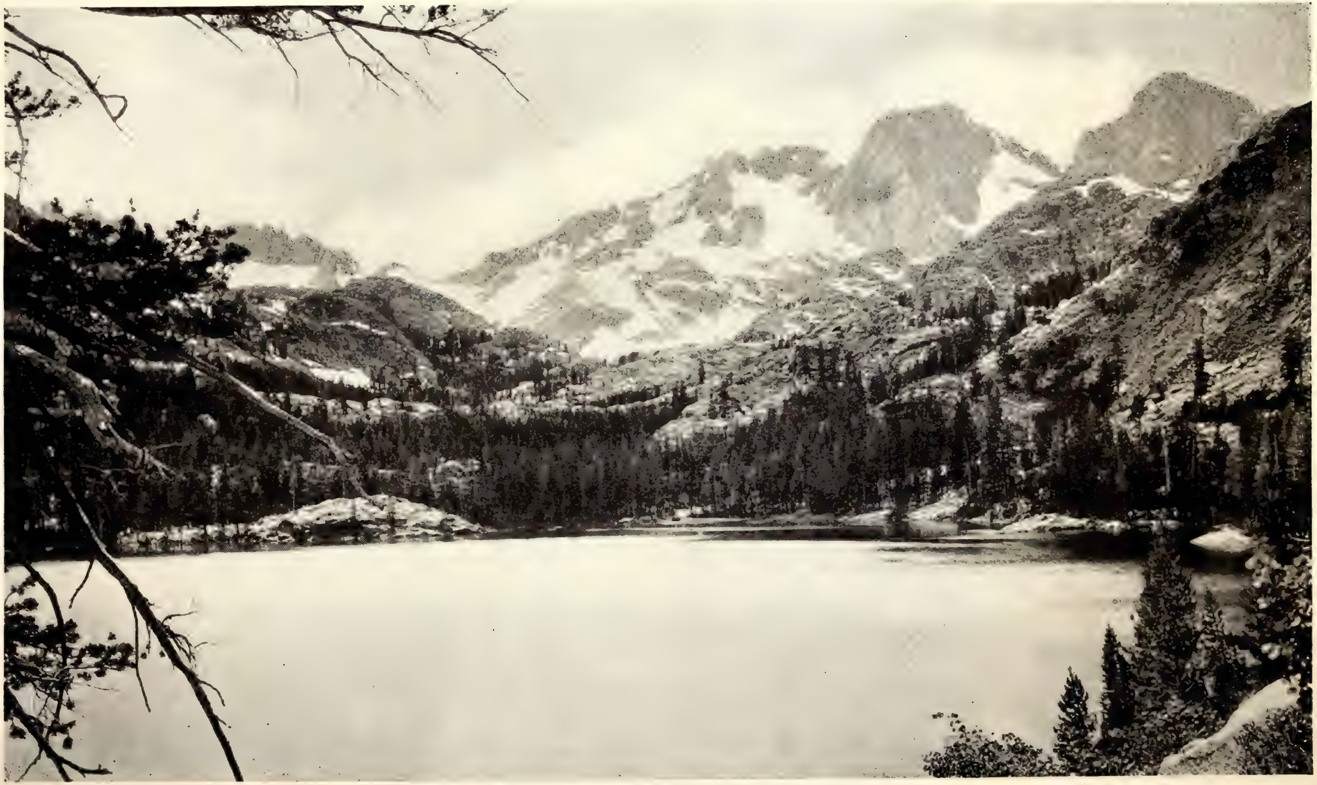
C. H. R. Woleaston,

Hon. Sec.

The Hon. Secretary, Sierra Club,
San Francisco



HEAD OF LYELL FORK, TUOLUMNE MEADOWS, YOSEMITE NATIONAL PARK
Photo by Wm. E. Colby



MOUNT RITTER AND BANNER PEAK FROM SHADOW LAKE
Photo by Walter L. Huber

SIERRA CLUB HONOR ROLL

Abeel, Ensign Edwin A., U. S. N. R. F., U. S. S. "Savannah."
Allen, Major Albert H., Comdt. Occidental College, Los Angeles Co., Cal.
Arnold, Ralph, Tax Reviewer War Revenue Act, Los Angeles, Cal.
Atkinson, Florence E., Medical Dept., U. S. A., Fort Snelling, Minn.
Babe, Leonora M.
Baer, Markell C., Ordnance Training Camp, Camp Hancock, Ga.
Barney, Lieut. C. R., F. A. N. S. A., P. O. 711, A. E. F., France.
*Barrows, Lieut.-Col. David P., Philippines and Siberia.
Beard, D. L., Red Cross, Italy.
Beckwith, Lieut. Holmes, Field Artillery.
Best, Capt. E. J., M. R. C., Base Hospital 30, A. E. F., France.
Blake, Capt. Edwin T., Engineers, France.
Blichfeldt, H. F., Range Firing Sec., Aberdeen Proving Ground, Md.
Brown, J. G.
Bruce, Lieut. L. E., Union Iron Works, San Francisco.
Bull, Edith, Red Cross.
Burpee, Walter A., O. T. S., Camp Zachary Taylor, Ky.
Burrell, Florence C., Chief Surgeon, Division of Orthopedics, A. E. F., France.
Campbell, Robert, 116th Engineers, A. E. F., France.
Chamberlain, Major Fidel C., Cons. Q. M., Camp Travis, Texas.
Chamberlain, Capt. Edmund, U. S. M. C., Aviation Section, France.
Chapman, Major R. H., Washington, D. C.
Clemens, Chaplain Jos.
Cliff, Francis Kester, Mine Sweeping Division, Staten Island, N. Y.
Corrigan, Lieut. J. Le Roy, Camp Lee, Va.
Craven, Lieut. Alex R., C. A. N. A., A. E. F., France.
Currier, Sgt. Farnsworth, Machine Gun Battalion.
Dean, Mrs. Sherman W. (*née* Barton), Y. W. C. A., Paris
Doble, Lieut. John Ashton, Ordnance Dept., San Francisco.
Doyle, Dorothy, Red Cross nurse student, Lane Hosp., San Francisco.
Drum, John S., State Director of War Savings for northern California and member Capital Issues Committee, Washington, D. C.
Durbin, Emma Pittinger, Base Hospital, Camp Lewis, Wash.
Einstein, Lesley, R. O. T. C., Camp Lewis, Wash.
Elliott, Lieut. Robert P., Aviation, France.
Emerson, Capt. George D., Const. Division, U. S. A.
Farquhar, Lieut. Francis P., Pay Corps, U. S. N. R. F., Navy Department, Washington, D. C.
Finley, Capt. Dozier, Frankfort Arsenal, Bridesburg, Pa.
Fish, D. D., Fd. Clerk, Q. M. C., A. E. F., France.
Frost, Capt. Lowell C., M. C., U. S. A.
Gardiner, Joyce, Y. W. C. A., Redwood City, Cal.
Gidney, Ensign H. D., U. S. N. R. F., San Francisco.
†Gillett, Lieut. Robt. S., 191st Aerial Squadron.
Goddard, Malcolm.
Goldsborough, Lieut. Wm. T., Amer. Air Service, A. E. F., France.

---

*Appointed Knight of the Order of the Crown by the Belgian Government.
† Killed in aeroplane accident September 17, 1918.

Gordon, Olive, Y. M. C. A. Canteen, France.
Graham, Lieut. H. B., M. C., U. S. N. R. F., Paris Island, S. C.
*Gregory, Warren, Belgian Relief.
Gripper, Lieut. Paul C., 21st Infantry, San Diego, Cal.
Grubb, Lieut. D. H.
Hackett, Lieut. C. Nelson, 810th Pioneer Infantry, Camp Greene, N. C.
Hall, Ansel F., 20th Engineers, A. E. F., France.
Hamilton, Dr. Jas. K.
Hansen, Harvey L., Convois Automibiele, A. E. F., France.
Harrell, Lieut. H. J., J. G., U. S. N. R. F.
Harshberger, Capt. C. E., Chemical Warfare Service, U. S. A.
Haskell, Lieut. L. G., Artillery, Fort Monroe, Va.
Haslett, Ensign S. M., U. S. S. "Decatur."
Heald, Major Clarence E., 56th Ammunition Train, Camp Eustis, Va.
Heflinger, Edward A., Commission Dept., Allentown, Pa.
Hickox, Joseph O., 32nd Infantry, Camp Kearny, Cal.
Hoag, Dr. C. L.
Holt, Lieut. Robt. L., U. S. N., Chief Executive, U. S. S. "Cacique."
Hubbard, H. V. S., Co. C, 508th Engineers, Ser. Batt., A. E. F., France.
Joliffe, Gladys, U. S. Naval Hospital, Washington, D. C.
†Kellogg, Vernon L., Belgian Relief.
King, Grace, Red Cross, Base Hospital, Camp Kearny, Cal.
Kline, Lieut. G. R.
Kofoid, Major C. A., Sanitary Corps.
Kroll, Capt. Frederic, Medical Corps.
Lee, Lieut. Charles H.
Levy, Lieut. Gaston J., Chemical Warfare Service, A. E. F., France.
Lewis, Major Gilbert N., Gas Service Dept., Washington, D. C.
Lipman, Edw. C., Yeoman 2nd Class, U. S. N. R. F., Union Iron Works, San Francisco.
Lipman, Sgt. Robt. L., Ordnance Depot Co., Camp Greene, N. C.
Losh, Lieut. Wm. J., U. S. Aviation Service, A. E. F., France.
Malone, Florence L., P. J., Unit 9, N. Y.
Malville, Lieut. N. J., A. R. C., American Red Cross, France.
Marshall, Lieut.-Col. Robt. B., U. S. G. S., Washington, D. C.
Mayers, Lieut. E. A., Signal Officer, U. S. A., Washington, D. C.
McAdie, Lieut.-Commander Alex., U. S. N. R. F.
McCleave, Capt. T. C., Medical Reserve Corps, U. S. A.
McDuffie, Duncan, Food Administration, Washington, D. C.
McGee, Capt. Ralph C., Supply Train, 89th Div., A. E. F., France.
Meads, Dr. A. M.
Miller, Ensign Homer T., U. S. N. R. F., U. S. S. "Tanamo."
Morrow, Miss Willie I., Red Cross, France.
Norton, O. Sargent, Tank Corps, Camp Colt, Gettysburg, Pa.
Olney, Warren, Jr., Chairman Appeal Board, Military Registration.
Parkinson, Lieut. J. H., Sanitary Train.
Parsons, Mrs. Marion R., Red Cross, Landes, France.
Paxton, Bright R., Aero Squadron, San Diego.
Perry, Sgt. Henry L., Ambulance Co.
Pierson, Warren L.
Potter, Mrs. Elizabeth Gray, Red Cross, France.
Prentys, Roland W.
Putnam, Nathan, Railway Engineers, France.

---

* Appointed an officer of the Order of the Crown by the Belgian Government.
† Appointed Commander of the Order of the Crown by the Belgian Government.

Rankin, Charles, Regiment A, Pelham Bay Park, N. Y.
Rankin, Lieut. John W., Aviation Section, Signal Reserve Corps.
Reed, Capt. J. Ross, Medical Reserve Corps.
Rentchler, Lawrence, Aerial Photo, Sec. 32, Eberto Field, Lonoke, Ark.
Roberts, W. C., Chemical Warfare Service, U. S. A., San Francisco.
Rodda, Alfred Gray, 2nd Artillery, C. A. C., France.
Ross, George, 2nd P. O., U. S. N., U. S. S. "Birmingham."
Ryerson, Sgt.-Major Knowles A., 1st Batt., 10th Engineers (Forestry), France.
Sandoval, Ensign H. E., U. S. N.
See, Capt. T. J. J., Naval Observatory, Mare Island, Cal.
Smith, Capt. John J., Medical Reserve Corps, Fort McDowell, Cal.
Smith, Stuart, Sec. 616, Ambulance Corps, Allentown, Pa.
Stanton, H. W., Master Gunner, Fort MacArthur, Cal.
Stewart, Coleena, Y. M. C. A. Canteen, London, England.
Stillman, Dr. Stanley, Medical Officers' Reserve Corps.
Stocking, E. L., Co. C, 18th Railway Engineers, A. E. F., France.
Strong, Edward K., Jr., War Department, Washington, D. C.
Swindt, Capt. J. K., France.
Tappaan, C. S., Y. M. C. A., France.
Thurston, Capt. E. T., Engineer Reserve Corps, Vancouver, Wash.
Tompkins, Lieut. Avery, Washington, D. C.
Tormey, Julian C., 182nd Infantry Brigade, A. E. F., France.
Trevorrow, Wm. J., Mare Island, Cal.
Van Degrift, Tyler R., 7th Batt., 166th Depot Brigade.
Van Hagen, Sayler, Y. M. C. A., Cauterets, Haute Pyrènées, France.
White, Geo. W., Battery D, 144th Regt. Field Artillery.
Whittle, Lieut. Geo. D., Engineer Corps.
Wilkie, Isabelle, Y. M. C. A. Canteen, France.
Witter, Elizabeth L., Red Cross, France.
Wood, Capt. Harry O., Engineer Reserve Corps, Washington, D. C.
Wood, Margaret, Red Cross, France.
Wood, Mrs. Fred W., France.
Woodward, Frederic C., Judge Advocate General Reserve Corps, Washington, D. C.
Zobel, Lieut. Sidney.

(This list is only as complete as was permissible from the data available. The addresses given here were war-time addresses and not necessarily correct now.)

BELGIAN RELIEF FUND AND RED CROSS ACTIVITIES

The donations for Belgian Relief have been discontinued. From January 13, 1918, to February 2, 1919, the sum of $344.15 was received. The Belgian Relief Committee was paid $10.00 a month for seventeen months, or $170.00; Belgian Christmas Fund, $20.00; French Christmas Fund, $30.00; Armenian Relief, $15.00; and Red Cross work, $109.15.

F. R. Parker,
Chairman

Members of the Sierra Club are urged to continue their Red Cross work. The Sewing Section meets every Monday afternoon from 2 to 5 at 1800 Buchanan Street. For knitting apply at the club-rooms, 402 Mills Building. *Do it today.*

(Mrs. A. E.) Violet E. Neuenburg,
Chairman

WAR SERVICE LETTERS

◆

The Sierra Club's Part in the War

During the period of the war the club endeavored to perform such of its work as was possible under the adverse circumstances which existed. It also tried to keep in touch with its members who had entered the service and send them a little cheer by means of letters from members at home. That this was an excellent plan is amply proven by the enthusiastic appreciation expressed in reply.

We are proud of the service performed by our members. Professor Vernon Kellogg, one of Mr. Hoover's right-hand men, is now in Europe, having recently visited Poland. Mrs. Marion R. Parsons has been in France for several months in full charge of refugee work in the province of Landes. Mr. Clair S. Tappaan is with the Y. M. C. A. in France. Dr. David P. Barrows and Albert H. Allen are both majors in the army. Professor A. G. McAdie is a lieutenant-commander in the Naval Aviation Service.

All of the foregoing either are or have been recently directors of the club. Our honor roll of members is so long that individual names can not be mentioned, but as complete a list as possible will appear in the forthcoming issue of the Bulletin.

Besides those who were in active service, the members at home did what they could to bring about a speedy victory. The club itself bought Liberty Bonds and War Savings Stamps to its financial limit, and its members formed a Red Cross Auxiliary and a War Correspondence Committee, and the local walk collections are regularly used for Belgian relief, while personal subscriptions resulted in raising over $200, which was sent to Mrs. Parsons to bring Christmas cheer to some of her refugee children.

⁂

Excerpts from Letters of Marion R. Parsons, now with the Red Cross in France

"Wasn't it kind of fate and the Red Cross to land me here in Paris just in time for July 14th? We got here late Saturday night and rode up through the darkened streets in a 'camion,' with all our baggage piled in with us. I wondered in case of an air raid how we ever could get out to find a shelter—what a scramble over that mountain of luggage it would have been! However, nothing happened. In the morning Miss McNeal and I started out early to see the parade. A lucky combination of chance and cheek got us a splendid place in front of the

Lille statue in the Place de la Concorde. We saw the decoration of the Strassburg monument, and the whole parade passed through a great open space right in front of us. A very pompous gendarme looked severely at us several times, for we were a little outside the crowd he had caged in behind the statue, but our uniforms and a firm front carried the day. Nearly every soldier was bedecked with flowers, and nearly all the allied nations were represented in the parade—a tremendously impressive spectacle, with a big offensive ready to break any minute less than fifty miles away. . . .

"Monday was kept as a holiday too, and will stand out longer in my mind as the day when I was first 'under fire.' *La grosse Bertha* spoke again after a silence of several weeks. I was sitting in front of the Louvre when the darn thing went off. It sounded mighty close to me, but missed me by about a mile, I afterwards learned. For a few minutes I thought I didn't care much about sight-seeing anyway; but then I reflected that I might just as easily be hit in the hotel as in the park and might better enjoy the privilege of seeing something first. Big Bertha does not seem to be thought much of, anyway. A woman near me merely shrugged her shoulders and said, 'Encore,' and went on with her reading. We all went around as if she weren't barking at all. . . .

"I worked at the hospital again yesterday—a terribly hard day. I had to tell one boy that his leg was amputated—he hadn't known it was gone. He was so brave about it for all he was so terribly weak and sick. Later, when I was giving him some soup, he said, 'They seem to take a lot of trouble about caring for you here, even if they know you're never going to be good for anything again. They seem to try just as hard to make you get well.' I had all I could do to keep from crying. . . .

"I saw Mr. McAdie too in London, to my surprise, and Patty Cosgrave Murray, who seems the same as ever. Here I have met Harry Hand and Elizabeth Gray Potter and Alice Leavens so far. Alice Leavens is returning to America tomorrow after a most eventful year here. She was at Havre when the Germans made their March advance, and had to evacuate with her refugees and without her possessions." . . .

July 21, 1918.

. . . "Since I wrote you last I've had only one day of hospital work, with some very slightly wounded but thoroughly tired-out Sammies—not at a real hospital, but at a refugee home which had been called into temporary service. I went there to inspect the refugee work as part of the preparation for my job, but took off my hat and rolled up my sleeves and fell to work bathing, undressing, feeding and jollying a bunch of lads so utterly weary and worn out they were just like tired, sleepy children. I had to wake one of them three times before even the idea of food would penetrate. 'Gee, isn't it quiet here!' he said, and fell asleep again, and then said exactly the same thing over again, and had to be waked a third time, though he was as hungry as a cannibal when he did finally come to. . . .

"One evening, however, there was no singing—we knew that a train of wounded was coming. It pulled in long after dark, silently as the little French trains always do, and the great darkened sheds that had looked so empty during our long hours of waiting were at once full of people and stir. I wish I could make you see it— the French 'Auxiliares,' with their blue veils and white dresses, following closely the uniformed doctors; the rows upon rows of stretchers with their tired, suffering men—a white bandage showing here, there a blood-stained bared arm or foot; the huddled, half-dazed groups of walking cases ranged on benches or floors; the sturdy, busy stretcher-bearers working quickly, quietly, and without the least confusion; and the ambulances burring off through the dark streets with their silent, patient cargoes.

"It was among the walking cases that we American women, four of us, were chiefly busy, giving them coffee or water and talking to them. They were mostly cheerful enough, uncomplaining all of them, but one very young chap couldn't get his experience out of his mind. He told me he hadn't slept for four nights thinking of it, and felt as if he should never sleep again. His best friend had been shot down beside him and had cried out, 'My God, my leg is gone!' and before this boy could get to him he too was down, and he hadn't seen him again. The poor boy's eyes looked as if he would never get that dazed, horrified look out of them again. . . .

"I have grown to love Paris very dearly in these three weeks. In spite of its war-time mask—the piles and piles of sandbags hiding its statues and doorways, its empty galleries—it is full of beauty and color. The parks are gay with flowers and the flower markets still flourish on the corners, and the war has not marred the beauty of the sunsets on the Seine or down the long vistas of the Champs Elysées. And the French spirit is wonderful. They show none of the sharp edge of strain that I was so conscious of in England. The women are so poised and unjangled—those at the *gare,* for instance, nearly every one of whom had close relatives at the front, many of whom were in mourning—women who worked there every day and slept there many a night. If anyone even hints that Frenchwomen are not doing their part in this war, don't you believe it. But I have also a profound disgust for Paris —so beautiful outside, but so unspeakably rotten within. With the gaiety of the better people so sobered, I suppose the underworld shows in all the stronger relief. . . .

"I'm finishing this down at Bordeaux on my way to my job. After playing solitaire with me and the map of France for about a week, Dr. Devine has made me delegate to the department of Landes. That means that I'm to be special providence and mother superior to about 10,000 refugees—not 100, mind you, nor 1000, but *ten thousand.* Do you wonder I'm so scared that I'm wobbly in the knees! Nobody seems to know just how many. One record says 8500 and the other 13,000, so I'm striking an average. I am (or will be tomorrow) within three hours or so of Irving Clark at Pau, but understand that Mont de Marsan, my headquarters, is flatter than a pancake. Hard luck for a mountain maniac, isn't it, when there are so many mountains in France? They held out the department of Jura before me just long enough to get my appetite up and then snatched it away." . . .

August 4, 1918.

. . . "There are two little rivers, the Midon and the Douze, that come sauntering through the woods near Mont de Marsan and join to make the Midouze. My town rambles about the banks of all three, a rather picturesque, *very dirty* town of tall bare white houses with red-tiled roofs. Some of the buildings are very old—of dull gray stone these—brightened by lichens as varied and beautiful as those on the Yosemite cliffs. The streets are crooked and narrow, many of them without sidewalks, and the closely shuttered houses fairly elbow you off the curb. You wouldn't think to look down such a street that behind the blank houses lovely high-walled gardens stretch right down to the little rivers. . . .

"Geographically, I regret to say, the Landes is the most uninteresting part of all France. It is flat as a pancake for the most part, wooded with a scrubby kind of pitchy, two-leaved pine—'pin maritime,' they call it—a planted forest set out seventy-five years or more ago to reclaim the sand-dunes of the coast and the sandy desert just behind. Practically all the industry of the coast half of the department centers about this forest. There are several turpentine distilleries, and all the trees are disfigured by longitudinal gashes which bleed them of their resin. Each tree has a little tin basin tied to it to catch its gore. When a district is to be lumbered they 'bleed the trees to death,' gashing them on all sides to catch every drop. Before they are quite dead the lumberman comes along and chops them down. Not very gay these forests.

"Near Mont de Marsan and farther to the east and south lies a flat agricultural country, rather pretty in a quiet way. It has a few very beautiful trees, especially near-sycamores, 'plantains,' and quiet little overshadowed brooks, but for a hill-lover its whole effect is depressing." . . .

August 14, 1918.

. . . "I wish you could have seen Paris last Wednesday night. It was full moon and misty, and not an artificial light was to be seen. Most of the Red Cross had been present at the War Service mass meeting, and on coming out I suggested to my companion that it was our bounden duty to walk along the Seine and see Notre Dame by moonlight. Of course, it was just the kind of night for air raids, but the Germans were awful busy elsewhere, and they seldom begin before 11:30

anyway, and so we took the chance. There can't be a lovelier city in the world. I'll never forget the sight of the great Place de la Concorde or the front of the Madeleine and the shadowy arches of the bridges and the light in the river and the wonderful bulk and majesty of Notre Dame. Each time I look at Notre Dame I wonder will it be there unharmed when I go back again. Paris has been marvelously spared so far—not one of her historic beauties marred. And there was no air raid after all." . . .

August 25, 1918.

. . . "It is all so different from my thoughts of it at home. My imagination had somehow never got beyond the first flow of the refugees from the invaded districts—the flood along the roads and in the Paris *gares,* the emergency work of supplying their first needs. That is over now—we'll hope forever!—and what I find are forgotten, neglected exiles, half-fed, half-clothed, lodged frequently in crowded, smelly, dark, frightfully unsanitary holes, sitting the long day through without occupation or amusement or companionship except with other exiles equally unhappy. After all they have been through, some of them living for eighteen months or two years under shell-fire, do you wonder that these stunned, bewildered, underfed creatures are rapidly developing into a pauper class, recognized as a serious menace to the whole future of France? . . .

"You can't work among these refugees for a week without coming to feel that under the dirt and squalor and laziness and all the misery that has been accumulating on them during four years of war there is something very fine and brave and true. I am getting instances every day—things I want to tell you in some letter, but as usual this has grown unconscionably long already. But I'd like you to see my Sister of Charity with her fifty orphan boys with whom she lived in a cellar at Bailleul for two years now crowded into a tumble-down old building in a village where every drop of water has to be fetched uphill for about an eighth of a mile—and it takes a lot of water to keep fifty small boys as clean as they are! Or the young French doctor, invalided home, in very poor health, running a military and a civil hospital and practicing throughout a district about thirty miles square—the only doctor for 40,000 inhabitants! And he has time to make special friends with a soldier from Tunis because he's so far from home and probably won't get well. You'd just love that doctor! . . .

"Yesterday was Labor Day, and next Monday's Admission Day, and I suppose you all went to the woods. I had one lovely mountain day up on the edge of the Pyrenees three weeks ago, when I went to visit Irving Clark's institution at Eaux Bonnes. We found eidelweiss and lovely big purple aquilegias and yellow Iceland poppies, pentstemons and heather and lots of charming flowers." . . .

September 5, 1918.

. . . "It was mighty good to hear from you, and I'm delighted to know that Tap is coming. I think the Y. M. C. A. needs men just of his type. From my own impressions of those I've met, it strikes me that the clerical element is stronger than the jocund. They're good fellows —splendid—but not amusing as they ought to be. Down here the great majority of the boys have never seen the front. They're working terribly hard at manual labor most of them, and in isolated camps where they haven't any diversions at all. I can't imagine anything better for them than one of Tap's 'lectures.' For his sake, however, I hope he won't be tucked down quite as far from the war. I feel positively ashamed to be so comfortable and to get so much sheer fun out of the work as I do every once in a while. (I can't get over the sheer cheek of my being here at all in my present exalted position!) . . .

"The news from the front is making everyone very happy, though there is a very wholesome lack of that confidence that the war is going to be finished quickly and easily that is so apparent, after every little advance, in our papers at home. There is not the slightest wavering in the determination to fight to a satisfactory conclusion. The news of the American victory at St. Mihiel yesterday has made every one wild with joy. I have had the rather embarrassing experience of having my old doctor publicly shake me by the hand and congratulate me on belonging to such a valiant and noble country! When I think, however, that we are going into the battles fully prepared and equipped, and remember how the French and English went in almost bare-handed, and how they have fought the Boche back for four years, I can't feel as thoroughly proud as I'd like. But we surely are popular with the French. One of the American officers told me that when he and a fellow officer entered a hotel dining-room at a resort in southern France a few days ago all the French people applauded them. Strangely enough, they didn't like it!" . . .

. . . "The roads here are very fine, and the country, though monotonous, is very pretty now. The great plane trees that arch above so many of the roads are beginning to turn and shed their leaves. Like the sycamores, the leaves turn slowly, grow brown on the tree and are shed almost one at a time. They do not seem so much to fade as to grow thinner and more translucent, for the whole effect is a brightening of the foliage to the tender greens of early spring. With the carpets of brown leaves along the edges of the white roads and the sunshine flickering down through the green arches, the color effects are enchanting. So too are the fields of purply-pink heather blooming now under the pines, and a prickly bush with yellow flowers that looks like what I've always thought gorse looked like. And all the brakes are turning a rich, bright brown. Yesterday we came home, as we often do, at what the French prettily call 'l'heure mauve.' The air grew crisp and frosty as soon as the sun dropped low, and as we rounded one low hill we saw, miles away across the flat pine-shadowed country, the sharp peaks of the Pyrenees." . . .

September 29, 1918.

. . . "As I rounded the corner in front of the hotel I saw an American navy officer at the door. 'How much that looks like Homer Miller!' I said to myself. And it was! He'll never know how near he came to being embraced, right there in the public square. How good it was to see him, and how we did talk! He had arrived in Mont de Marsan shortly after noon, and, as he is probably the first naval officer who has ever been here, he created quite a sensation. Homer said he had about three French officers with him all afternoon, and he with about one French word for each of them. I know what a strain it must have been —I've talked with three French officers at once myself. He told everyone he met that he was a friend of mine; so next day every one was asking me who and what Homer was. Of course, I said he was an admiral, or would be soon. Well, he departed on the morning train in an aura of chocolate creams and ginger cookies, and I had the same feeling of left-behindness that I had when Arthur Elston left Paris—contrary-minded person that I am, for you couldn't pull me away from France now with a pair of tongs!

"Our work has just about doubled during this last month. We have opened our second office at Dax, where there are even more refugees than at Mont de Marsan, and where they are even more miserable. They are on the whole of a lower type than those of Mont de Marsan—drink more, are dirtier and more generally worthless. We have grown very fond of some of our refugees here.

"I have had it in mind for some time to tell you some of their stories. Père and Mère Dudon come from near San Quentin. They are repatries, having lived nearly three years behind the German lines. I think I told you that old Mère Dudon had fifteen children living at the outbreak of the war. Three have been killed; two she has lost track of; five are at the front; five are prisoners in Germany. When I visited the old couple first they were nearly starving. Mère Dudon had collapsed on the doorstep of one of my French committee members, who called her case to my attention. Their one room was scrupulously clean. It had the usual hard slat bed and mattress of straw, a table of rough boards with sawhorse legs, a bench, and two or three cooking utensils. There was an open fireplace, where they cooked the little they had. They were probably sending packages of food to their prisoner children; otherwise, even with war prices, they would not have been reduced to such bags of skin and bone. I gave them a stock of provisions, and then the old man—they are both over seventy—begged me to find him some work to do. . . .

"It was not until I had grown to know them well that they told me what poor old Mère Dudon had suffered at the Germans' hands. I don't know what provoked it, but she is a spirited old thing and probably boasted of the number of children she had given to France. Anyway, she infuriated a German officer, who tore open her dress and slashed off her right breast. An old bent woman of seventy! I have seen the scar myself, and have shown it to the doctor at our clinic. There is no possible doubt as to the truth of her story.

"One woman in our care was shot in the leg by the Boche—'par méchanceté,' she told me; but I never finished getting her story, through some interruption. Another had her husband shot down and killed beside her in their own home because he protested against a German officer taking all his fourteen rabbits.

"As a rule, the stories of the worst cruelty all belong to the first year of the war. Those who have lived longer behind the lines complain for the most part of unreasonable regulations, fines, petty tyranny, loss of property, or unjust prison sentences. One very intelligent woman from the Vosges told me that so long as things were running normally the Germans in her district were kind enough. 'The soldiers often gave my children bits of chocolate, and a military doctor used to care for the sick; but twice it happened that the country had to be evacuated, and then we were treated like dogs, herded out of the way with no regard whatever for the hardships and suffering we had to undergo.' I asked her why she had returned to France, since her husband was a civil prisoner behind the lines. 'Because of my son,' she said. 'He is fourteen. All the boys and girls were taken from their families and sent into Germany as soon as they were fifteen.' . . .

"I saw little of the celebration of victory, for I wasn't allowed to leave the hospital and come up to Mont de Marsan, where all the real doings were. We did not get the news of the signing of the armistice until nearly two o'clock at Labouheyre. Then Dr. Seagrave came up from the village, from the mayor's house, where she had just learned it, and told us all to go over to the mayor's, as he wanted us to go with him to the *mairie* while he announced it to the village people. He made us walk beside him and grouped us near him as he stood on the steps of the *mairie* to address the crowd. His speech, I thought, was very good, even if my translation of it makes it sound stilted to you. 'My friends,' he said, 'the bells have already told you what I have to say. Germany has signed the armistice. The nightmare under which we have lived for four long years is over. In this hour of victory let our first thoughts, our first gratitude, be for our noble dead. This is not a day for words. Our hearts are too full. Let us pay tribute, however, to our glorious allies, through whom civilization has triumphed over barbarism. England, Italy, Serbia—above all America, by whose unstinted help we have finally conquered. Let us remember that in our darkest hour America came to our aid; that America realized that if France perished civilization itself was doomed. We have conquered. Victory is ours. Lift your voices now and cry with me, *Vive l'Amérique! Vive la France!*' . . .

"Well, I suppose by the time this reaches you my Landes experiences will about be over. Comparing notes with one of the captains the other day, I found he had about my experience—cordially detested the country when he first came, found it uninteresting and monotonous, and has grown to love it and see much beauty in it since. October and early November were glorious in color. Some of the vineyards had the most wonderful tones of rose and lavender; there were brilliant red maples and oaks and great masses of yellow. Now it is a country of deep rich tones of brown, colors that we never see in California. Keith's later paintings will always mean southern France in late November to me now. The fogs have a singular beauty here too, especially on moonlight nights. They lie close to the ground, not in continuous masses, but broken and torn by the wind. Driving through the pine woods in the moonlight, you could fancy them the scarfs of a hundred fairies dancing among the trees.

"This will have to be Christmas and New Year greetings to you all. I have about a thousand on my refugee Christmas list, and have to distribute to all the sick American soldiers in the department as well, so I'm not thinking Christmas outside of France. Oh, while I think of it, *please* don't think of having the after-the-war outing to the John Muir Trail until 1920! You won't begin to have us all back by next July. My own contract holds until June 27th, and I naturally want to see a little something before I start back home." . . .

"*Dear Sierra Club:* You *are* nice people! Your hundred dollars will not only give Christmas to the Coudures orphans, but to those at Tartas as well—a hundred little Belgian girls. After Christmas I'll write and tell you what I did with it." . . .

December 11, 1918.

"Hotel Richelieu, Mont de Marsan

"*Dear People:* Check after check keeps coming in. How good you all are, and how much I can do with it! All of it will go for Christmas. Some of it I am going to leave in the hands of *la Generale* to use after I am gone in helping through the hardest winter months. We are going to be able to leave a stock of provisions to continue our sales idea. Here in Mont de Marsan I have a devoted group of ladies to carry things on for a while at least without me. I hate to leave some of these poor people. Poor old Dudon fell dead in the street a week ago Tuesday, only a few minutes after he had left my office. He had been working there as chipper as could be all morning. We have at last located a daughter and a soldier son and have started the machinery to get old Mère Dudon sent to the daughter, who is near Paris. 'I shouldn't want to go if the Red Cross was going to stay,' she said. Poor old thing! how she must want to hang on to any one who shows the least interest in what is to become of her! So many families are scattered that may never be reunited. For three months I have been trying to locate a nine-year-old boy who was 'lost' in the evacuation of a hospital at Noyon.

"We have definite instructions to close all of the Red Cross work on December 31st. Unfortunately, instead of being transferred to the devastated area, as some of us had hoped, there is every indication that most of us will be sent home. I am making every effort to get into some form of work, even if it is in another country, but so far have not met with any encouragement. All the refugee workers are bitterly disappointed that we are not to be allowed to help in the reconstruction. Down here all any one can do is just temporary. It would have been infinitely more interesting to be helping restore these people to normal life and surroundings again.

"It is funny what grandmotherly concern we have about leaving our refugees to the care of their own countrymen! We of course feel that we handle things better! It is a constant wonder to us how anything is ever accomplished with all the impedimenta of ceremonial and red tape that accompanies every movement. And the documents! I wish you could see some of the offices at the prefecture, just spilling over with records. When I think of all the people I've told my age to, and realize that each time it was written down and filed away, my brain reels.

"I have just had a very amusing instance of the circumlocutory way of doing things here. I have been receiving large stocks of provisions, and was greatly annoyed by an *octroi* official, who not only came nosing around and talking about taxing everything I brought in, but actually held up my goods at the station and wouldn't let them be delivered until I had declared what was inside the bales and boxes. As I had ordered everything from shoes to ham and from crutches to an accordion, and didn't know what was coming first, that was plumb impossible, and I got very, very mad. I sat down and wrote a hot letter to the prefect, and told him that, as the goods were brought from America for the exclusive benefit of his refugees, I thought it unfair that I should pay the same tax as the merchants did, and asked to be exempted; said, too, that if that couldn't be, would he at least tell his *octroi* man to give me the privilege of declaring them myself, and not annoy me by holding up their delivery? It certainly was a fierce letter, and when a week went by without a reply I began to repent me of my boldness. But then the letters began to come in. I got one from the prefect, one from the mayor, one from the *conseil generale*—something like an attorney-general—and one from a lawyer in Bordeaux. And the upshot of the matter was that I had asked something that the law of France would not allow them to give. Much as it pained them, they had to tax me; but the very moment the tax was paid it should be returned to me, for it was intolerable that I should be asked to pay. A few such incidents in a day make one a little dizzy. . . .

"As usual, this letter has taken a rest of a few weeks, and most exciting things have been happening. About two weeks ago I got a telegram from my Bordeaux boss saying that I was being considered for work with the Balkan commission, and if I wanted to go I had better be prepared to close my work up quicker than I had planned. Of course I wanted to go, and at once began to speed up preparations. The Wednesday before Christmas the Paris office telephoned that if I could drop work and be in Paris in two days I could go. It was maddening. Elsie was in Bordeaux with Lizzie and I couldn't get hold of her, and upon consideration I knew that she was entirely incapable of closing things out here, especially the financial and statistical part. I have done all the bookkeeping and making of reports and inventories, and it has grown too complicated to turn over without a course of instruction. And there was Christmas coming, too, and I had to lose the chance! Wasn't that hard luck? In a few days more came a letter from Irving Clark asking whether I would consent to be his assistant at the Red Cross depot at Mezieres, near Sedan in the Ardennes, providing he could get my appointment confirmed. I wired that I would, and yesterday I heard that I am appointed, and I am to report in Paris next week. The Red Cross is not going to do reconstruction work at all, but is to establish warehouses at Lille, Amiens, Laon, Mezieres, Chalons sur Marne, and Verdun and work entirely through French committees. As I understand it, my job will be to "make decisions as to which societies receive supplies." That sounds as if it were to be rather aloof from any personal contact with the returning people, which may be less interesting than the work here; but as between that and returning to America I did not hesitate at all. There are only to be twelve such Red Cross positions in all France, according to present intentions, so I feel mighty lucky at that.

"I know you all want to know about Christmas and what the many francs you all so generously sent did to make the day a happy one in my department. So before I tell you about our parties I'll give you a brief and informal accounting. With the money you good people sent we bought toys, handkerchiefs, nuts, oranges, figs and chocolate for 210 refugee orphans; gave a Christmas dinner, with chicken, salad, wine and dessert to 150 old people who hadn't tasted such things for four years; produced two cinema shows in Mont de Marsan and Dax, with Christmas trees for the 150 old people and about 800 children (I bought the toys and goodies for these with Red Cross funds), and gave 220 francs in money to special deserving people. ('Gee whiz!' I hear you say. 'And do they say that there are war prices in France!') Yes; but you don't know how many checks came independently and how little it takes to 'show these people a good time.' The man who received the largest lump of money, you may be interested to know, is not only a refugee here with his family, but is an 'ampute de guerre.' He fought three years and lost both legs above the knee. Moreover, he lost all his teeth, and is now suffering from indigestion and malnutrition besides. Unfortunately, before I knew that he ought to have false teeth the Red

Cross closing had already begun and Bordeaux couldn't let me do anything. So your money arrived just in time. He is such a brave, cheery chap, not more than thirty years old. And his country pays him for his sacrifice four francs a day (less than eighty cents) for the support of himself, his wife and his child! He is a shoemaker, and a good one, and if he gets some strength back he can make a living still.

"We had our movie show in Mont de Marsan on Tuesday afternoon, Christmas Eve, and in Dax the Monday before New Year. The convent celebrations I could not get to see, but we carried the things out the week before and paid a farewell visit to the children. Major Brooking went with us to Coudures and St. Sever, and his Dodge and our Lizzie gave the fifty orphans a ride. You never saw such shrieking carloads of arms, legs, sabots and heads all mixed in together! The village hasn't recovered from the shock yet. The Major was as impressed as I have been by the beauty and charm of the Sister Superior of Coudures. She is one of the most delightful women I have met in France.

"We confined our gift-giving to children under fifteen and old people above sixty-five. But I think every one of the 2258 on my relief list got some little goody—oranges or nuts or a little package of cookies. The movie shows made an immense hit, and the *sous-préfet* of Dax was dazzled by the display of toys.

"I was very deeply touched, if a little ashamed, by having the refugees present me with a little gold medal in appreciation of the Red Cross work here. It is about the size of a five-dollar gold piece, beautiful in design, like all the French medals. On one side is the head of a helmeted warrior-woman—*la Gauloise*—on the other a crowing cock, the emblem of France, and the inscription 'Reconnaissance, réfugiés Landes.' I am as proud of it as if it were a *croix de guerre,* even though I feel like a thief in taking to myself all the gratitude and affection that ought to belong to you at home who are making the sacrifices and putting up the money and getting none of the glorious experience that I am having. But I am on the ground and get the expression of it, and you will have to be satisfied with the knowledge that your sacrifices are appreciated and that the name of America is like the name of Providence to these people. We had a heart-rending morning yesterday, when we held our last sale and they all said good-by to us. Many of the old people cried on our shoulders, and we were much put to it not to weep ourselves. The work is over here. Only accounts and reports and packing to do, and then off for Paris again. Saturday and Sunday I am hoping to sneak down to Lourdes for one look at the Pyrenees." . . .

January 3, 1919.

. . .

Maison de la Providence, Coudures, Ce.

Madame la Présidente du Comité Américain: January 1, 1919

Permit me to offer you our thanks for the photographs that we have just received and which have given us so much pleasure. Notwithstanding they are so small, they are good likenesses, and the children to whom I showed them said immediately, "It is Mdme. l'Américaine, who did so much for us for Christmas!" This exclamation repeats to you, Madame, the happiness that you gave to them. I told them that the generosity of your personal friends assisted you in giving them so much joy, and we have offered a prayer that the good God will bless these charitable people. Will you please, Madame, offer them my particular thanks and say to them that the little orphan refugees of the north of France will pass many happy moments this winter, thanks to your toys so well chosen?

Thanks again, Madame, for the sugar that I have just received. Yes, more and more am I overwhelmed by your kindness to us.

Let me repeat to you also how much I regret your departure from Landes! We were accustomed to see you sometimes at Coudures, and you know that your visit and that of Mdme. Rouge were veritable holidays for the children. The poor refugees of Mont de Marsan must be very sad—you were so good to all of them! A new field is open to you for your work, since you tell me that you will go soon to Mezieres. I doubt not that you will again do much good in this part of our beloved France, and I know in advance that the poor stricken ones will bless you.

Of our return to Bailleul, it is not yet possible to think of, for it must be entirely rebuilt and this work will take a long time. When the good days will return, they will think of us again perhaps!

In closing, please accept, Madame, the respectful remembrance of each of the Sisters and those of the children, to which I join mine, accompanied by my affectionate salutations.

I have the honor to be, madame la Présidente,

Your very humble

Sœur Siot,
Sister of Charity

. . .

U. S. P. O., A. E. F. 711, France,
September 3, 1918

My dear Wilding:

When I received your first letter I was at Condrecourt on the staff of the 1st Corps Artillery Schools, and, as the Irishman would say, "and a very nice job it was too." The country around there was one that would surely appeal to the average Sierran. Long sloping ridges with pine forests, each ridge teasing you to go to the top of it so that you could see what was on the other side. When you did you saw stretched out before you just about the same kind of a valley that you had traversed to get there, with plenty of wild life and a French town or two sticking its Gothic church spires and slate-colored houses up through its green surroundings. The wild flowers were in bloom then and the frequent rains keeping the grass green, all added to the spring beauty. The flaming-red coquelicot (our red garden poppy—here a wild flower) spotted the fields with its flaming red. You can picture the landscape, if all our poppies were red instead of yellow. I had often wished while there that I could transport the Sierra Club entire for an overnight trip there. France is a beautiful country. Most particularly is it beautiful in spring. Frequent rains and such trees as usually grow in damp stream-bottoms keep it green when our own state has put on its brown coat that it usually carries for summer wear. It is in fact the prettiest country that I have ever seen. It is pretty in its French way; but nothing that I have seen here can approach the boldness and silent grandeur of our California ridges where they drop into our deep redwood-filled cañons in the places where we most like to lay our bags. The vastness of California scenery is missing, and its grandeur. Pretty as it all is, and much as I will dislike to leave it behind, for there is so much historic charm and quaintness everywhere, still it will be a great day for me when I can stretch my legs and lungs again at the six- to ten-thousand-foot level in our own Sierra.

As you probably know, I am in the artillery branch of the service, and took my course, as did a great many officers of the same branch, at Saumur, which at one time was the oldest and finest cavalry school in the world, but for some time now has been an artillery school, and a very fine one, probably the best-equipped one over here. Homer Spence, a first lieutenant, and, I think, an Alameda boy, is an instructor there, or was at the time that I graduated. Since leaving there my life up to the past month or two has been a rambling one and full of interest. At Gondrecourt I was within hearing of the guns at the front on most all days, though they were a considerable distance away. We could always tell when any action of importance was on by the multiplied intensity of the artillery action. The Boche planes passed over us now and then on their way to Paris, and could be detected by the different sound of their motors from our own. We picked up a large paper balloon one morning to which had been attached a fat bunch of daily papers printed in French within the territory captured by the Germans. It was the *Gazette des Ardennes,* and was a fine instrument for furthering German propaganda. Its news items were rich with German successes by land and sea. It also drew pleasing pictures in its local items of feast-days, weddings and the like, which laid particular stress upon the ideal life that the inhabitants enjoyed under the rule of their German captors. Altogether it was a very smooth little edition, calculated to work upon the weak and war-weary minds of the territory, which they were seeking to further subjugate. This was found at the time that the Germans were beginning their big push which got them as far as Château Thierry. I had hopes of staying in that vicinity and taking part in what we all felt was going to be a very important and likewise a desperate action, for the momentum of the German forces at that time seemed to require some very hard fighting to keep them from getting dangerously close to Paris. I had passed along the Marne through Château Thierry, Epernay and the country adjacent to the railroad on my way down there, and I could picture what a mess the invading army had made of it. The country in its peace-time state was unspeakably beautiful. I might say in passing that the destruction of nature's beauty-spots is not the largest of Germany's crimes by any means, but it is one sufficiently devilish to make a Sierra Club man see red. It was not to be my good fortune to remain there, for about the time that I am speaking of the artillery school was discontinued, the policy of the Government being to concentrate such institutions in larger units. I was sent across country with the entire equipment for three or four hundred miles. The trip was made by motor-truck and was a very beautiful one, as we passed through a very rich portion of France, including the wine country, which is very clean and pretty, with poplar-lined canals and good roads and rosy-cheeked girls (don't tell my wife).

After completing my tour of duty and delivering this equipment to the officer in charge of the school—a San Francisco boy, by the way—I reported here, and am at present railhead officer in charge of all shipments coming by rail to this camp, which is the largest artillery camp in France. It is a man's job and keeps me on the jump early and late; but I am afraid it has put the quietus upon my ever seeing the front while the war continues. I have a half-dozen quartermaster men under me and forty-five Algerians, my labor-detail, the latter speaking nothing but Arabic and French. They are pretty good guessers, so they understand what I tell them in the latter language. I spoke none at all when I came over in February, so you can figure how fluent I must be now. I get good work out of my men, and have the satisfaction of knowing that it is work that has to be done, and if it is well done it means just as much in the whole scheme of things as if I were commanding a battery at the front—more, really, as one battery at the front is a very small proposition, while this is a very large one. I am the "main guy" here. Thousands of tons of United States subsistence for man and beast pass through my hands here every day, and I have issued forage for as many as ten thousand horses here at times, so you see we are a busy little community. I like the work, like the country and like the experience, and if my wife was here I wouldn't care (from a strictly selfish standpoint, understand) how long the war lasted. With best wishes,
Very sincerely yours,

Chas. Royce Barney,
2nd Lieut. F. A. N. A., U. S. P. O., A. E. F. No. 711

⁂

France,
Sunday, Sept. 22, 1918

My dear Mr. Parker:

"Whiz-bang!"—this is the music that is greeting my ears as I sit in our seven-by-twelve dugout writing this by the light of a candle. It is anything but a romantic situation to be in, but an interesting one, to say the least. I am at last where everyone appreciates enjoying good health and hopes to continue so. Since last writing you we have been "forward marching" almost continuously. Many times I have thanked my lucky stars that my days of hiking with the Sierra Club were not for naught. We have been put to the test "road pounding," and I have, so far, come in on schedule time always. More power to the club! if it does nothing more than teach a person how to keep going.

Incidentally, I might add here that we carry all our worldly possessions on our backs. These bundles weigh on an average of from forty to sixty pounds, depending upon how much personal stuff one thinks he can lug. Many fellows started out with a vanload, but as the miles grew larger the packs grew lighter. We are now down to bare necessities, and we are continually scheming how and what we can get rid of. When I get back and join you all again on the overnight trips, I'll be fully able to add a few suggestions as how to carry the field-range in your hip pocket and your sleeping-bag in a handkerchief.

After a number of days traveling we finally pulled up at our present location, and things are proving mighty interesting. The Huns are no respecters of feelings or nerves.

While on our way here we went through our baptism of shell-fire. My first experience at this "enjoyable" little game was anything but pleasant. I can best describe the sensation as one of helplessness. The only time I ever had this same feeling was the morning of the San Francisco earthquake. Strange as it may seem, after the first three or four "bangs" my feelings were changed and I was itching to get a crack at the Dutchman who was causing all the rumpus. It must have been his night off, for his aim was poor and all the damage done was the disfiguring of the landscape about 200 yards from us. This particular gun shoots over our heads every evening at regular intervals—evidently wants to destroy some particular railroad point or some crossroad.

A few days ago the most popular man in camp, the mail orderly (the Y. M. C. A. man comes second), delivered to us a bunch of mail from home. Among those for me was a copy of the T. C. C. "out-of-doors." It certainly was a pleasure to get it, and I read it through from heading to printer's name. I started to read the copy of a letter to you from one of the boys, and as I read on the wording seemed familiar. I looked at the signature and—well, you know everyone hates to see his own name in print. It was a bit of a surprise.

We have passed through villages that have suffered from German kultur. The best comparison I can make is to say they look like Market Street after the San Francisco fire. The Huns are thorough in their destruction. They strip a village of every movable thing and destroy the balance, including the town itself.

(Several days later:) Did not get a chance to finish this last Sunday. The last few days have been exceedingly interesting ones. The Dutch-men seem to take great pleasure in disturbing our slumbers, and each night we are treated to an old-time 4th of July. So far none of their greetings have come close enough to my particular unit to do any damage. We are taking no chances, however, and are ready for them at any time. Our gas-masks are our bosom friends, and we wear them ready on an instant's notice to dive into them. My present home is a seven-by-twelve dugout with nearly all the comforts of home. Some one must have admired the Persian rugs and marched off with them, as Mother Earth is our carpet; but this doesn't bother us, for if we had them we'd have to keep them clean. The mud in this section is here in gobs. We've had plenty of both rain and sunshine. The latter is favoring us now, and we've come out of our squirrel-holes to enjoy it. In our quarters we have four bunks, à la Pullman car, straw mattresses and chicken-wire springs. Our covering is our blanket, overcoat, blouse, raincoat and anything else our delicate systems may fancy. Some of the boys use their gas-masks for pillows, others their comfort-kit bag filled with K. C. Bs. For myself I am the proud possessor of an air-pillow. Candle-light has been our usual means of illumination heretofore, but at present all we have to do is turn on the button and our *electric light* burns gloriously. How's that for being up to date? From 7 to 11 each evening we enjoy its rays; after that the one-power candle comes into its own. We also have a home-made writing-desk and chair to add to our comfort.

I said four of us occupied our bungalow. I must not overlook our four-legged friends, the rats. They seem to like our companionship, so, uninvited, have moved in with us. Presumably they feel they have a prior right, being here ahead of us. However, they do not bother us, and we haven't time to interfere with their plans, so we both go about our own affairs. Where we are located reminds me greatly of Muir Woods. The country about here is very pretty, and I would like to go nosing around, but "Safety first" is our password, and we stick close to home. Strange to say, there are many birds around us. One would think they'd seek a more restful place while the seeking is good. Another thing that has taken my eye is the French lily. These are in great numbers in places we've been. They are a beautiful purple little flower, growing wild like the California poppy. As I sit here under the "shade of a sturdy oak," the music that greets my ears is "Whang-brrr-crack!" and a few seconds later "Bang!" Our side and the other fellows take great delight in sending and returning greetings. These steel messages are far overhead and are lighting far away; otherwise, I assure you, I would not be here calmly telling you about it. When this letter reaches you, you will probably have read some more news about further American successes. I would like to tell you more, but Billy Censor is a particular sort of a fellow and hates to have us tell all we know; otherwise, we'd have nothing to talk about when we get home.

The papers are no doubt telling you of activities around Metz. Until we started our "forward march" we were able to obtain the daily newspapers and keep informed as to what's going on. Now we are uninformed and are at sea as to the general movements of the Allies. We get bits of news, but it's like feeding a starving man by letting him read a cook-book. I am wondering if the Allies have taken Metz. We want to be with the boys when they march down the main street of that city. Maybe we will, and maybe we wont; but it will not be long before we'll be marching down some main street in some big city, and it will be some German place, mark my word, and it won't be long either. The people at home can rest assured that before we come home for that fatted calf and tell you all about the medals we won, or nearly obtained, we are going through Kaiser Bill and his horde of kulturists, and we are going through them thoroughly. The job is being done now, and it's not far off before we'll be hocking Bill's crown—hocking it in an American way, not in the German sense of the word.

The Huns are awaking to the fact that the American army over here is anything but a small, contemptible one. I can't see how they figure to come out of this affair with a whole skin at all. The German prisoners we have taken have been told there were only a few Americans over here and would not believe we had several million men in Europe. Their awakening is being a tough one.

Yesterday we were issued several pairs of Red Cross socks. Again I say more power to this society. The folks at home will never regret what they are doing and have done for this organization. Another body that the Americans should be proud of is the Y. M. C. A. We have a "Y" man with us, and he takes good care of us "stomachically" besides spiritually. He and the mailman run a good race for first place in the popularity contest. When time and circumstances permit, Mr. "Y" man appears upon the scene with cookies, tobacco, jam, gum, salted peanuts, and occasionally candy. His supply is generally limited, but each of us get the opportunity to get a goodly portion of his wares. This is the first time in my life where I had money to spend and no one to take it. If anyone wants to save their coin, tell them to join the army and head this way.

We have become accustomed to the French money now. It annoyed us at first, not the amount in value, but in paper. Five dollars in change meant the carrying around of a wad of bills nearly an inch thick. Paper money is issued in value as low as fifty centimes. In our money, "real money," the boys say this equals ten cents. Sometimes the boys start rolling their cigarettes with these before they realize the difference. French coins are numerous, however. But the worst trouble we have is spending our salary; but, then, we haven't been to Paris as yet. Our cooks are taking excellent care of us and our meals come regularly. Canned goods are used extensively, but everything is fine. Yesterday they treated us to some good home-made doughnuts.

Several days ago a letter came to me from one of my fellow Sierrans. Portia Dalton was kind enough to write me, and I surely was glad to hear from one of my 8:15 side-hikers. Letters are a mighty welcome thing over here, and they can not come too fast and furious. I am enjoying the best of good health. Am going through a wonderful experience, and will have some great tales to tell you when I start to carry my pocketful of nuts and raisins over the Marin hills once again.

I have not yet run across any fellow Sierrans, but have my eye peeled for them. Will be looking forward to hearing from you again in the near future. A few lines from any of my club friends is a great source of pleasure. Trust you are enjoying good health and awaking in time each Sunday for the good old 8:15.

With best wishes from
JULIAN C. TORMEY,
182nd Inf. Brigade Hdqrs., American P. O. No. 776, A. E. F., France

. . .

Somewhere in Belgium,
November 14, 1918

My dear Mr. Parker:

Well, here I am again for a little chat with you after a good many days' silence. I say *silence,* but this means quietness of pencil and paper, not of French 75s and 110s and the 57 varieties of French cannon. Since last writing you we have left the land of *parlez-vous,* and are in this interesting country of Belgium. We side-door-pulmanned and road-pounded our way here, and my present address is the usual "somewhere," but in a different land. My last letter to you was sent some weeks ago, and since then I've been through enough fighting and other interesting affairs to fill a volume. Much of my experience I will have to retain until some day when we are sitting in a quiet nook somewhere on Tamalpais and I can open up the flood-gates and pour my chatter into your ears.

Shortly after writing you last we went into action—"over the top" is the popular phrase—and for over a week I had my baptism of fire. At first the sensation wasn't anything like a debutante's coming-out party, and when we came out of the line, after giving the Huns a thorough good licking, I had to admit that I knew just a bit about the flash and crash of artillery, the whistle and bursting of shells, barb-wire entanglements, dugouts, shell-holes, aeroplanes, fights, the "put-put" of the machine-guns, tree-trunks splintered and severed by shells, ruined houses, villages and towns converted into stone-piles, rain and mud, hardtack and stew. The most annoying thing to me during our advance was "Jerry and his Barrack Bags." Will introduce him to you. He is any Boche aviator who comes sailing over (mostly during the moonlight nights), with a load of bombs, and when he thinks he has the proper range on some nice town or forest full of soldiers he lifts up the tail-gate and down come the explosives. The nickname we've given this projectile is "Barrack Bags," on account of the size of it. So moonlight nights may appeal to the treaders of Lovers' Lane in California, but over here a foggy or rainy one is voted most popular. Fritzie does his dirty work in this line, as I say, at night. His yellow streak is too big to permit him to come out and pull off his game in daylight. Speaking of moonlight, we have had some beautiful weather since coming to this country. The November days are exactly the same as those of good old California, and I have never seen more beautiful evenings. Even Fritzie has not been around to disturb us. I know you will be interested in knowing that I came through all the days of our fighting without receiving a scratch of any kind. We were also in action in this country and gave the Huns a great reception. To us it appeared more like a foot-race than a fight, for Fritz was continually retreating, and about the only way we could make him go faster was to fan his coat-tail with our artillery. Fritz is licked, and he knows it. He is getting out of Belgium as fast as he can, and, from reports we hear, he is raising the dust getting back to his own country all along the front. The Kulturites had better wipe the dirt from old Napoleon's downy couch on St. Helena Island, for Bill K. seems destined to have a one-way ticket there.

It would do your heart good to see the cordial way the Belgians treat us. After four years of Hun rule they are free, and nothing is too good for us American boys. We are "Vive la Americaned" as we go by, and many of the people actually weep, they are so happy. I feel fully repaid for the bit I've played in this great game when I see the joy they express. The Prussians and Bavarians are hated by the Belgians, for it was these two classes that treated the populace shamefully. Some of the stories would make your blood boil. I will have some interesting things to tell you in this regard when we meet again.

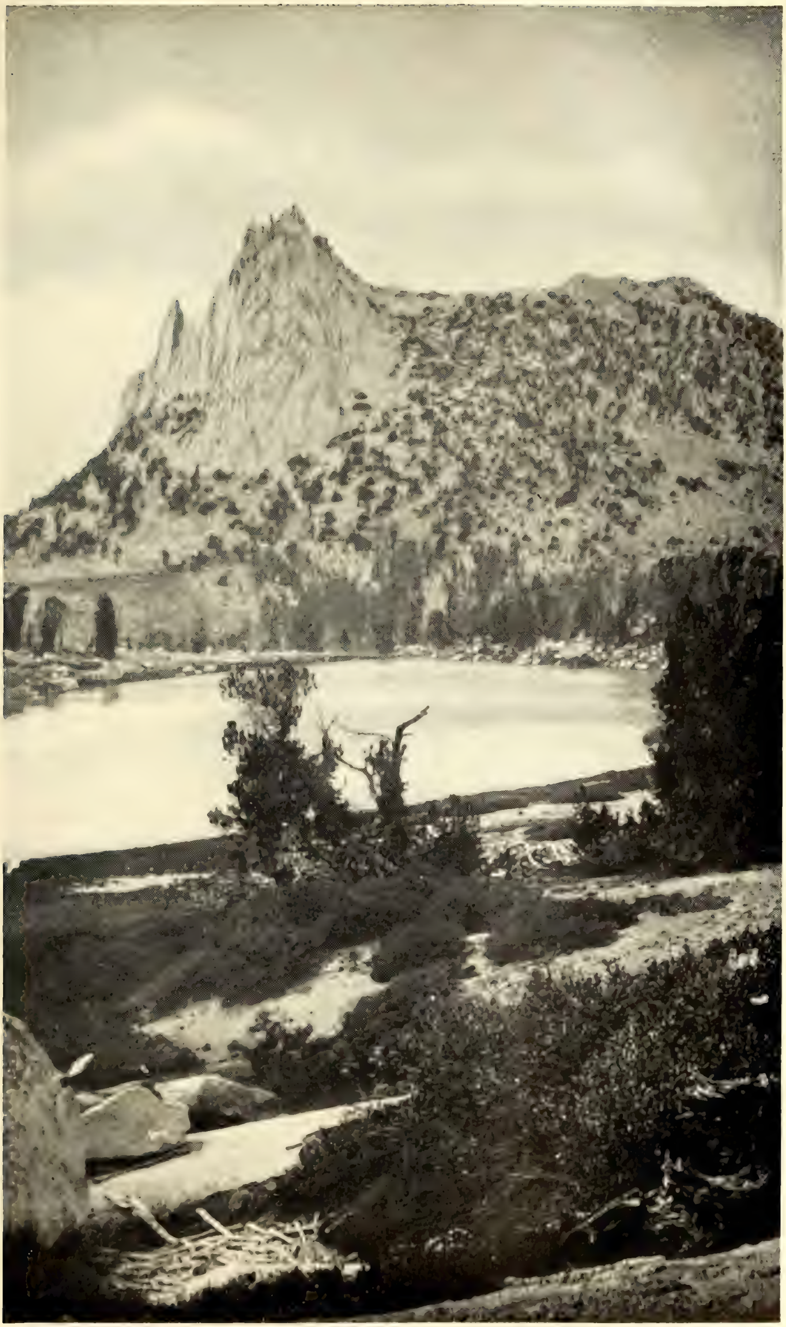
This country is entirely different from France. It is almost entirely level, and it was days before we came to a hill during our advance. The entire country is intensely cultivated—at present with turnips and beets. This growth I am told is a second planting. The first is a grain crop, and the vegetables are then put in to fertilize the ground, and also serve as a food for both man and beast. During our marches we were never "empty," as the turnips were always near us in great plenty. They proved life-savers to me many times when our chow-wagon was not on time; but once in the good old U. S. A. again, I am inclined to remove this specie of the vegetable kingdom from my visiting list. I've had my fill. Army stew is another form of filler that I intend to sever relations with also. Heinz must have been in the service at one time, and obtained his idea about 57 varieties while doing his bit. Most of the time our food is fine, especially when we are at some resting-point. During the marches it's hard to feed 300 men from a field kitchen; but somehow it has been seldom that we had to dig down into our sacks and get out our reserve rations, consisting of hard bread and bully beef. The latter is a corned beef, and is affectionately known as "canned willy" by the boys. We also carry a pressed package of coffee large enough to make three good-sized cups. From time to time our stock is replenished. So there is no chance of our going hungry at any time.

In France, after we went on the line, our resting-places were generally in the field under tent cover. Here in this country we billet in the natives' houses and barns. The expression "Hitting the hay" is literally carried out by us. This form of bed is very comfortable and exceptionally warm, and, I will add, healthy. Our "roosts" are in the lofts in the fresh, clean straw, and fresh air is plentiful. This accounts for the lack of the Spanish flu amongst us, and which, from accounts I hear, the U. S. is full of. The life of a soldier over here is a strenuous one, but a healthy one also. For myself, I haven't had a sick day since I left California—not as much as a cold. Guess I'm too busy "getting Fritz" to run around and have the Infirmary Medic feel my pulse.

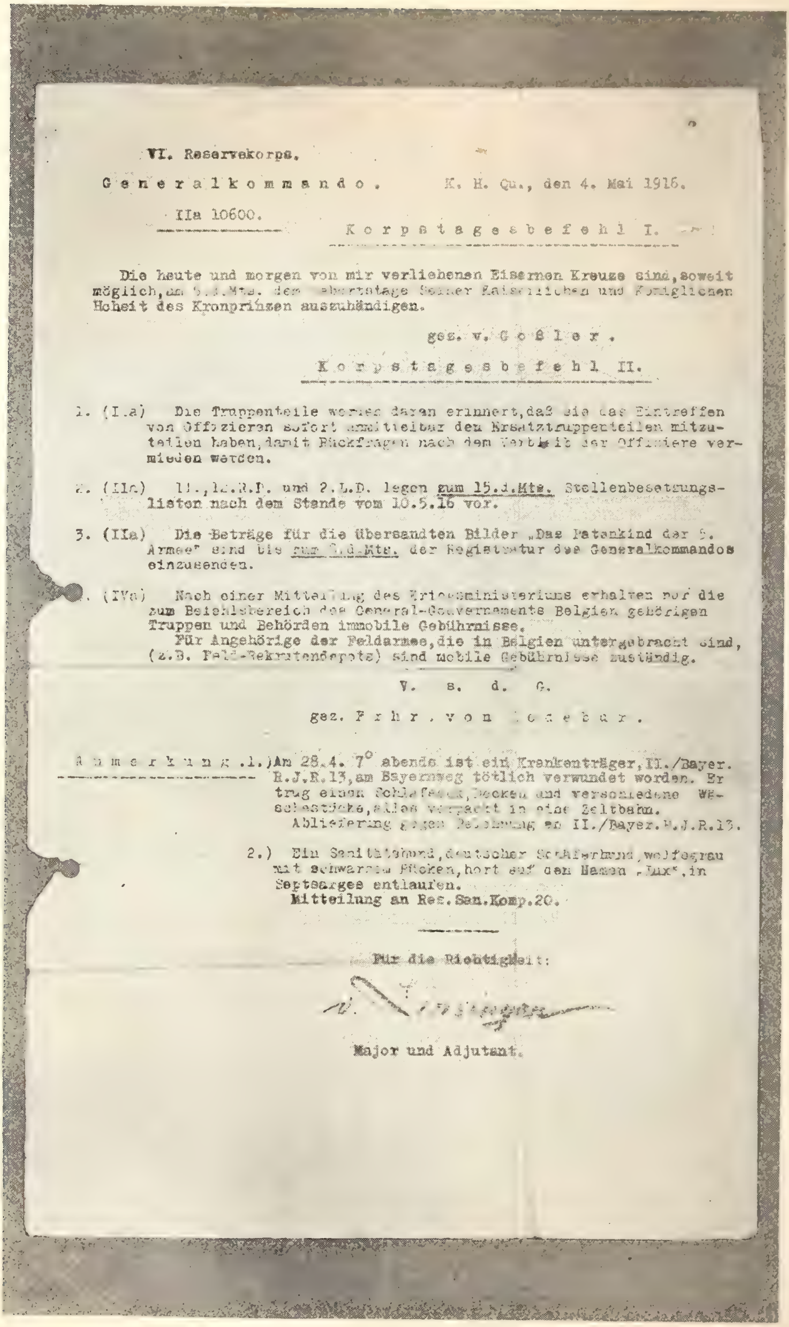
After many months of booming and banging it seems strange for us to be enjoying a spell of quietness. I refer to the armistice, which is now in order. By the time this reaches you we'll all know whether peace is with us or not. I know the people in the U. S. are intensely worked up over the prospects of peace. For us boys over here, we hope it does come, but at the Allies' terms. You can imagine what a Christmas present it would be to be told we were going home soon, but before I get out of here I want to see kultur and all that it means cleaned from the face of the earth once and for all. I want my next trip to Europe to be one of pleasure, not one of showing some inflated, "God-chosen," demented creature where he belongs. Bill has had a taste of what an "American mob" can do, and at this time is probably lamenting the fact that he didn't stay in his own back yard and keep on kidding himself that his kultur was for "me und Gott" and no one else. Well, he shot his bolt, and I only hope his punishment is such that he will be able to see the progress the world will make without him. Death would be too good for his old filthy hide.

The people of America have every just cause to be proud of their boys over here, and the folks of California especially in the Division from the West. We were especially complimented for our work in France, and the King of Belgium, I hear, has praised us also. So when we return we may be decorated like a Christmas-tree or something. All the boys are, of course, talking about what they will do when they get back to God's country. It will be one of the happiest days of our lives when we pass old Miss Liberty Statue, and New York will look like a flag station when I start for California. I am looking forward to seeing you and all my good Sierra Club friends again. I promise not to monopolize all the conversation, but I warn you if I don't get a chance to talk I'll merely bust.

Just a few days ago I was in receipt of several letters from my hiking club friends—your two of September 8th and 28th, from Redwood City; one from Clarence N., of September 20th; one from Miss Edwards, of September 26th; one from Mr. and Mrs. Neuenburg, of September 24th;



CATHEDRAL PEAK AND UNNAMED LAKE
At head of Budd Creek, Yosemite National Park
Photo by Wm. E. Colby



VI. Reservekorps.

Generalkommando. K. H. Qu., den 4. Mai 1916.

IIa 10600.

Korpstagesbefehl I.

Die heute und morgen von mir verliehenen Eisernen Kreuze sind, soweit möglich, am 6.d.Mts. dem Geburtstage Seiner Kaiserlichen und Königlichen Hoheit des Kronprinzen auszuhändigen.

ges. v. Goßler.

Korpstagesbefehl II.

1. (I.a) Die Truppenteile werden daran erinnert, daß sie das Eintreffen von Offizieren sofort unmittelbar den Ersatztruppenteilen mitzuteilen haben, damit Rückfragen nach dem Verbleib der Offiziere vermieden werden.

2. (IIa) 11., 12.R.D. und 2.L.D. legen zum 15.d.Mts. Stellenbesetzungslisten nach dem Stande vom 10.5.16 vor.

3. (IIa) Die Beträge für die übersandten Bilder „Das Patenkind der 6. Armee" sind bis zum [illegible].d.Mts. der Registratur des Generalkommandos einzusenden.

4. (IVa) Nach einer Mitteilung des Kriegsministeriums erhalten nur die zum Befehlsbereich des General-Gouvernements Belgien gehörigen Truppen und Behörden immobile Gebührnisse.
Für Angehörige der Feldarmee, die in Belgien untergebracht sind, (z.B. Feld-Rekrutendepots) sind mobile Gebührnisse zuständig.

V. s. d. G.

gez. Frhr. von [illegible].

Anmerkung. 1.) Am 28.4. 7° abends ist ein Krankenträger, II./Bayer. R.J.R.13, am Bayernweg tötlich verwundet worden. Er trug einen Schlafsack, Decken und verschiedene Wäschestücke, alles verpackt in eine Zeltbahn.
Ablieferung gegen Belohnung an II./Bayer.R.J.R.13.

2.) Ein Sanitätshund, deutscher Schäferhund, wolfsgrau mit schwarzem Rücken, hört auf den Namen „Lux", in Septsarges entlaufen.
Mitteilung an Res.San.Komp.20.

Für die Richtigkeit:

Major und Adjutant.

GERMAN ARMY ORDER

On the back of which a member wrote a letter to the club

(See translation, on page 473)

one from Ruth Burchard, of September 18th; and last, but far from least, the "community" letter, written September 29th by all you good folks at Lake Lagunitas. The above list looks like a roster of the Sierra Club, does it not? Well, I want to tell you from the bottom of my heart how deeply I appreciate every word written me. If time and circumstance would only permit me, I would answer every one of the kind and thoughtful folks who devoted their time to cheer me up, and if the opportunity does present itself I will write them; but I want you to thank them for me and express my deepest gratitude for every cheery word they sent me. I spent many a pleasant tick of the clock visiting with you all, and it indeed was *some* visit. I hope the day is not far distant that I will be able to express my appreciation to you all other than by a French lead-pencil. My feelings toward the Sierra Club, and that means the good people in it, have increased a thousandfold. I always considered being among you one of my greatest pleasures, but since being over here I have fully grown to appreciate what the meaning of good fellowship is. I don't believe anyone feels that keen sensation unless they have gone through what the boys have over here. It seems to have awakened a new spirit in me, one that is hard to describe, but fills a person up to the brim and to the bursting-point. I know that each member that is doing his bit on this side of the Atlantic has this same feeling toward you all at home who are doing all to make our days as cheerful as possible.

I constantly keep my eye open for any fellow club members that are over here, but during all my wanderings I have never met any. This world is small, however, and there is no telling when and where I may come across one or more of my old 8:15 friends.

Since last writing you I have been transferred back to my old company. Am doing the same line of work—telephonist. My address is at foot of letter. My mail is all being sent to me here from the 182nd Brigade headquarters, so I will not miss getting any mail matter. As you know, no one can send any parcels to the boys over here without a written authorized request. However, Uncle Sam has raised no objection to folks at home putting a stick or two of chewing-gum in their letters. If any kind-hearted Sierrans have an extra piece buried away somewhere, they would be giving me a treat if they would enclose it in their letter when they write to me. This will be a good chance for dropping me a few lines. Gum is a scarce commodity over here, more so than candy.

It is now 3:30 in the morning. Am on watch from midnight to 8 A. M. Things are as quiet as a church-mouse, with the exception of a fellow comrade who unintentionally is giving me a fine imitation of how a trombone should be played. But even his snoring is more soothing to the nerves than Fritzie's "Whiz-Bangs" and "Big Berthas."

I deeply regret that I can not use a camera. The pictures I could take would prove to be of wonderful value and something historic. But

I regret to say that the ones I'll bring back will be in the mind's eye only. My powers of description will have to be keenly sharpened if I wish to convey any half-way decent idea to you of what I've seen and been through.

I hope the war news continues to be on the sunny side. You folks at home, 8000 miles away, are better informed than we who are next door to the Rhine. We get few papers and little information as to the activities on the various fronts. It would not be a bad idea if some one would donate a daily paper to the club rooms and these papers be kept on file. For one, I would be interested in reading the account of how the peace terms progressed after I get home.

I've rambled on for a couple of hours now and haven't said much of anything, but this will let you all know I am still among those present, enjoying the very best of health and looking forward to the day when I will be with you on the 8:15.

With best of good wishes to each of my friends and deepest personal regards to you, Mr. Parker, from

Julian C. Tormey,
Headquarters Company, 363rd Infantry, A. P. O. No. 776,
American Ex. Forces

⁂

Sierra Club, At the Front, France, Nov. 4, 1918

Dear Friends: You might like to get another line from here, so will send this. We started a drive yesterday and today the Germans are so far back our artillery have no targets. Where I am now is ten miles over the Hindenburg line, and I am sleeping in a concrete dugout made by the Germans and cooking on a German stove and using quarters in France that the Germans held for four years, and am writing on the back of some paper that is around here in bales.

The prisoners have been coming in by the hundreds, and I have spoken to many through men who spoke German. They are tired of the war, and many of them, officers included, curse the Kaiser and his government for getting them up against what they had before the Americans. Some to whom I spoke were surprised that we treated them so well, the wounded, and I have seen loads of them treated well; the seriously wounded Germans are treated before the slightly wounded Americans.

Last week we were shelled in this town by hundreds of shells, and the aeroplanes dropped bombs; we were gassed too, but we let loose and have gone ahead about fifteen miles, and reports are that we are still going. Today I am left behind in peaceful territory. Will go up to the new front tonight.

Now I hope all the Sierra Club people in France are well and also those at home, and will close with best wishes.

N. J. Malville,
American Red Cross, Paris

[The following is a translation of the German army order on which Mr. Malville's letter was written. See original illustration opposite page 471.]

VI RESERVE CORPS
HIGH COMMAND
IIA 10600. Imperial Headquarters,
May 4, 1916

Order of the Day for the Corps—I.

The Iron Crosses granted by me today and yesterday will be, as far as possible, conferred on the 6th of this month, the birthday of his Imperial and Royal Highness the Crown Prince.

Order of the Day for the Corps—II.

1. (IIa) The troops are reminded that they are to immediately announce to the Reserve Forces the arrival of officers in order to avoid further inquiry as to the whereabouts of such officers.

2. (IIa) The 11th and 12th Divisions on the right, and the 2nd Division on the left, will submit by the 15th of this month lists of positions occupied according to their positions on May 10th, 1916.

3. (IIa) The money for the transmitted pictures, "The God-Child of the Fifth Army," is to be remitted to the registering office of the General Command by the 8th of this month.

4. (IVa) According to an announcement of the War Department, only those troops and authorities within the scope of the command (jurisdiction) of the General Government of Belgium will receive immobile pay.

Those attached to the Field Army, who are lodged in Belgium (e. g. Field Recruiting Depots), are qualified to receive mobile pay.

V. s. d. G.
(Signed) BARON VON LEDEBUR

Note:

(1) At 7 o'clock, P. M., on April 28th, a stretcher-bearer of the IId Bavarian Jager Reserve Regiment 13, was wounded unto death (severely wounded) at the Bayerweg. He carried a sleeping-bag, blankets, and various pieces of laundry, everything packed in a tent.

(2) A Red Cross dog, a German shepherd dog, wolf-gray with a black back, answering to the name of "Lux," ran away at Septsarges. Communications to be sent to Reserve Red Cross Company 20.

As to correctness:
V. LINSINGEN,
Major and Adjutant

∴

Headquarters Air Service,
2nd Army, A. E. F., France,
Nov. 20, 1918

To Sierra Club friends, Greetings:

A Merry Christmas to you one and all. May the New Year be happy and prosperous and bring us all together again for a glorious reunion.

Get things in shape for the 1919 outing and enter my name on the list. I'll be there.

Billy Goldsborough,
1st Lt. A. S., U. S. A.

. . .

THE NAVY CLUB
For U. S. and Allied Sailors and Marines
509 Fifth Avenue, New York

Mine Sweeping Division, Base B,
Staten Island, N. Y.

Secretary Sierra Club:

I would like some information regarding my standing in the Sierra Club. I am anxious to keep up in my club payments, as I do not want to be dropped from the rolls. The Sierra Club is doing too good a work not to allow myself to do my little bit in opening up those grand old mountains to the general public a little more than they are now, and it is only when you are in service this way, and so far away from their pine-clad ridges, that you can appreciate them to their fullest. There are no snow-clad peaks, mountain trails or evening campfires out on the briny, you know—only hard work. But the Kaiser's finish is in sight, and then back again to our mountains. I want to go as a Sierra Club member though; so kindly tell me how I stand and how much I owe.

S. F. address is 623 Third Avenue; but send this information to the Mine Sweeping Division.

Francis Kester Cliff

. . .

U. S. S. "Tanamo,"
October 1, 1918

Secretary Sierra Club:

This evening, as I was about to write and say hello, and to gently but firmly suggest that all the Sierra Club mail possible be sent to me in care of this my good ship, the mail orderly came aboard with a nice plump Sierra Club envelope, and I have lived over all the joys on the map of the proposed Sequoia National Park, all the way from Simpson Meadows to Cottonwood Pass. I sincerely trust the bill has had, or will have, the consideration it deserves, although the time for pressing it may not be just this moment. on account of war needs.

The club's circular is of great interest too, and the very last paragraph meets with a hearty response from me—"We shall all look forward eagerly to the day when annual outings will be resumed and we meet again around the glowing campfire and listen to tales of our members who have been overseas."

Even in my short sea experience of less than two months I have more than once stood on the bridge in the inky darkness and seen—not darkness, but the beautiful meadows of the Sierras, and thought not war, but campfires and jolly folks, and Colby miles! But, Heaven willing, when this job is finished we will all have a grand get-together, and a happy day it will be.

I am now serving as the Supply Officer of this very good little ship—not so little but that we can carry some millions of pounds of food to the army. We are in the Naval Overseas Transportation Service, and it's proud of the service and the ship I am! There's work—lots of it; sleep—usually; excitement—quite enough so far; in fact, there's hardly anything that's missing, war-time considered.

I wish you would remember me to any of the Sierrans who may drift in; to friend Colby whether he drifts in or not; and you might also send my mail direct to the address below, for which thanks. And when the spirit moves, write. With kindest regards, I remain

Sincerely,
HOMER T. MILLER

Address: Ensign Homer T. Miller, U. S. N. R. F.,
U. S. S. "Tanamo,"
Care Postmaster, New York.

∴

Captain Ralph McGee has written many interesting letters from the Verdun front in France to his father. We quote this from a recent letter: "I started through the German lines, explored a German colonel's dugout that had just been hastily abandoned; it was finished in mahogany; climbed out of that and a few feet away stumbled over the body of one of my best friends, a young lieutenant who was married the same day I was. My heart stopped dead and I could not help cursing the Kaiser. This war isn't so bad until you come face to face with something on the muddy ground that a few hours before was an enthusiastic American youngster. The captured German officers are very haughty, but the captured German privates are disconsolate; all seem loyal to William, but bitter against the capital class in Germany, who, they say, started the war. I haven't had a man sick for a month; they are all afraid that they will miss something if they go to the hospital."

In another letter he writes: "The Americans stormed the village, and an old, half-starved Frenchwoman stumbled out of a cellar, where she had hidden, against German orders. She heard the American infantry bayoneting the German guard in the streets. When rescued, she said, in French, that she had never heard English spoken and did not know a word of it, but the war-cry of the American soldiers as they were killing the Germans so impressed itself on her mind that she would never forget the wonderful American words, although she did not know what they meant, as she only talked French. When asked to repeat these words, which she thought was the American war-cry, she said when the American infantry came down the street they all yelled at the top of their voices, 'Damn you!' And everybody laughed, while the old Frenchwoman was much confused."

NATIONAL PARK NOTES

Annual Report of the National Park Service

The director's annual report for the year ending June 30, 1918, is so comprehensive and marks such an advance in the character of the work done under the direction of the recently established National Park Service that if we were to publish all the information that would be of interest to our members it would fill a volume of itself.

It is the policy of the Park Service to prevent the grazing of sheep, because of their destructive nature, and allow only the grazing of cattle where such grazing will not injure the natural features of the park nor interfere with visitors. Timber is to be cut only where necessary for fire protection and where it will not injure the landscape. In order that the buildings and improvements in the parks shall harmonize with the natural surroundings, landscape engineers have been employed. Co-operation with other Government bureaus and with railroads is also an important object. In spite of the war, the attendance at many of the national parks was nearly up to normal last year, and an inter-park system of highways, so that one can motor from park to park, is also being worked out in co-operation with the state.

The National Park Service has also taken up certain educational features, such as motion-picture films, lantern slides and photographs, which have been circulated, and has published quantities of portfolios and pamphlets containing illustrated descriptions of the various parks.

The Sundry Civil Act of July 1, 1918, carried a total appropriation of a little over $1,000,000 for the national parks. The director recommends that the Mammoth Cave in Kentucky, also the wonderful sand-dune area in Indiana on the southern shore of Lake Michigan, and a stand of California redwood along the Eel River be preserved as national parks.

YELLOWSTONE NATIONAL PARK

Since the soldiers were removed from the Yellowstone Park, an efficient ranger system has been established, and a bill is pending providing for the enlargement of the Yellowstone National Park by adding the land lying to the south and east of the present park, and in all likelihood this will pass.

YOSEMITE NATIONAL PARK

Two hundred and fifty-five thousand dollars was appropriated for the current year. The new power plant, completed at a total cost of $212,000, can supply 2000 kilowats, and will take care of all the needs of the Yosemite Valley for a long time in the future. The old power plant will probably be sent to the Sequoia National Park, where it is badly needed. The El Portal Road is being widened to twenty feet, and rock copings and concrete ditches and culverts are being built, so that by the end of this year it will be a boulevard of very slight grade from El Portal to the valley. Three new trails were constructed during the season. One leading from Lake Merced up Emerick Creek, and crossing the low divide into Tuolumne Meadows, will enable travel to enter the Tuolumne Meadows by this route much earlier than over Vogelsang Pass. Another new trail leaves the Tioga Road at Yosemite Creek; crossing and following up Yosemite Creek, it enters the Ten Lake Basin. We understand that the trail proposed by the Sierra Club to cross the Tuolumne Cañon at Pate Valley will be undertaken this summer. The third trail built last summer is the Ledge Trail back of Camp Curry, which was made safe and improved. The Tioga Road justified its existence last year, when hundreds of automobiles took advantage of this opportunity to cross the Sierra through this park. In co-operation with the State Fish and Game Commission, a fish hatchery is to be established in Yosemite near the site of the old power plant, and it is hoped that this new hatchery will be in operation this summer.

SEQUOIA NATIONAL PARK

The discovery of a large limestone cave in the Sequoia National Park has added materially to the park's attractions. Explorers have entered the cave 4000 feet thus far, and some of the caverns are unusually beautiful. It is the director's idea to have this cave lighted by indirect lighting, and to use electricity, thus avoiding the blackening of the walls by the use of torches. The road was built from the Giant Forest down to the Marble Fork and a bridge constructed across this fork. A wooden stairway was also built to the top of Moro Rock and a hundred miles of trail cleared up and repaired.

GENERAL GRANT NATIONAL PARK

Plans for a new and larger camp and an extension of the road and water system were prepared by the landscape engineer sent out for the purpose.

MT. RAINIER NATIONAL PARK

Travel to this park taxed to the limit the capacity of the hotels and camps last summer. Many new trails leading out from Paradise Valley were constructed, and the trail encircling the mountain was put in excellent condition, with well-constructed shelter cabins along the route.

CRATER LAKE NATIONAL PARK

The grading of the rim road was continued and a splendid new trail built from the lodge to the shore of the lake.

ROCKY MOUNTAIN NATIONAL PARK

This park has again justified its existence by last season's travel, which exceeded 100,000. The annual appropriation of $10,000 is so small that it is difficult to administer this park properly. A bill is pending before Congress to remove this handicap and provide adequate appropriation.

GLACIER NATIONAL PARK

The war's effect on railroad travel interfered materially with the attendance, but in spite of this important road and trail improvements were carried on. A fish hatchery was established and new administration buildings constructed.

HAWAII NATIONAL PARK

The Hawaii National Park, containing three active volcanoes, is on this account one of the unique world parks, and there are many plans for the improvement of these three areas.

Those who are interested in the details of park improvements and what has been done in the other various national parks and monuments will find this 1918 report of the National Park Service full of the most interesting information. Mr. Mather, the director, and his able assistant, Mr. Horace M. Albright, are to be congratulated, not only for this excellent report, but for the splendid work which they have been carrying on in the various parks and which makes such a report possible.

⁂

Statement of National Park Policy

DEPARTMENT OF THE INTERIOR

Dear Mr. Mather: Washington, May 13, 1918

The National Park Service has been established as a bureau of this department just one year. During this period our efforts have been chiefly directed toward the building of an effective organization while engaged in the performance of duties relating to the administration, protection, and improvement of the national parks and monuments, as required by law. This constructive work is now completed. The new Service is fully organized; its personnel has been carefully chosen; it has been conveniently and comfortably situated in the new Interior Department Building; and it has been splendidly equipped for the quick and effective transaction of its business.

For the information of the public an outline of the administrative policy to which the new Service will adhere may now be announced. This policy is based on three broad principles: "First, that the national parks must be maintained in absolutely unimpaired form for the use of future generations as well as those of our time; second, that they are set apart for the use, observation, health, and pleasure of the people; and third, that the national interest must dictate all decisions affecting public or private enterprise in the parks."

Every activity of the Service is subordinate to the duties imposed upon it to faithfully preserve the parks for posterity in essentially their natural state. The commercial use of these reservations, except as specially authorized by law, or such as may be incidental to the accommodation and entertainment of visitors, will not be permitted under any circumstances.

In all the national parks except Yellowstone you may permit the grazing of cattle in isolated regions not frequented by visitors, and where no injury to the natural features of the parks may result from such use. The grazing of sheep, however, must not be permitted in any national park.

In leasing lands for the operation of hotels, camps, transportation facilities, or other public service under strict Government control, concessioners should be confined to tracts no larger than absolutely necessary for the purposes of their business enterprises.

You should not permit the leasing of park lands for summer homes. It is conceivable, and even exceedingly probable, that within a few years under a policy of permitting the establishment of summer homes in national parks, these reservations might become so generally settled as to exclude the public from convenient access to their streams, lakes, and other natural features, and thus destroy the very basis upon which this national playground system is being constructed.

You should not permit the cutting of trees except where timber is needed in the construction of buildings or other improvements within the park and can be removed without injury to the forests or disfigurement of the landscape, where the thinning of forests or cutting of vistas will improve the scenic features of the parks, or where their destruction is necessary to eliminate insect infestations or diseases common to forests and shrubs.

In the construction of roads, trails, buildings, and other improvements, particular attention must be devoted always to the harmonizing of these improvements with the landscape. This is a most important item in our program of development and requires the employment of trained engineers who either possess a knowledge of landscape architecture or have a proper appreciation of the esthetic value of park lands. All improvements will be carried out in accordance with a preconceived plan developed with special reference to the preservation of the landscape, and comprehensive plans for future development of the national parks on an adequate scale will be prepared as funds are available for this purpose.

Wherever the Federal Government has exclusive jurisdiction over national parks it is clear that more effective measures for the protection of the parks can be taken. The Federal Government has exclusive jurisdiction over the national parks in the states of Arkansas, Oklahoma, Wyoming, Montana, Washington, and Oregon, and also in the territories of Hawaii and Alaska. We should urge the cession of exclusive jurisdiction over the parks in the other states, and particularly in California and Colorado.

There are many private holdings in the national parks, and many of these seriously hamper the administration of these reservations. All of them should be eliminated as far as it is practicable to accomplish this purpose in the course of time, either through Congressional appropriation or by acceptance of donations of these lands. Isolated tracts in important scenic areas should be given first consideration, of course, in the purchase of private property.

Every opportunity should be afforded the public, wherever possible, to enjoy the national parks in the manner that best satisfies the individual taste. Automobiles and motorcycles will be permitted in all of the national parks; in fact, the parks will be kept accessible by any means practicable.

All outdoor sports which may be maintained consistently with the observation of the safeguards thrown around the national parks by law will be heartily indorsed and aided wherever possible. Mountain climbing, horseback riding, walking, motoring, swimming, boating, and fishing will ever be the favorite sports. Winter sports will be developed in the parks that are accessible throughout the year. Hunting will not be permitted in any national park.

The educational, as well as the recreational, use of the national parks should be encouraged in every practicable way. University and high-school classes in science will find special facilities for their vacation-period studies. Museums containing specimens of wild flowers, shrubs, and trees, and mounted animals, birds, and fish native to the parks, and other exhibits of this character will be established as authorized.

Low-priced camps operated by concessioners should be maintained, as well as comfortable and even luxurious hotels wherever the volume of travel warrants the establishment of these classes of accommodations. In each reservation, as funds are available, a system of free camp sites will be cleared, and these grounds will be equipped with adequate water and sanitation facilities.

As concessions in the national parks represent in most instances a large investment, and as the obligation to render service satisfactory to the department at carefully regulated rates is imposed, these enterprises must be given a large measure of protection, and, generally speaking, competitive business should not be authorized where a concession is meeting our requirements, which, of course, will as nearly as possible coincide with the needs of the traveling public.

All concessions should yield revenue to the Federal Government, but the development of the revenues of the parks should not impose a burden upon the visitor.

Automobile fees in the parks should be reduced as the volume of motor travel increases.

For assistance in the solution of administrative problems in the parks relating both to their protection and use the scientific bureaus of the Government offer facilities of the highest worth and authority. In the protection of the public health, for instance, the destruction of insect pests in the forests, the care of wild animals, and the propagation and distribution of fish, you should utilize their hearty co-operation to the utmost.

You should utilize to the fullest extent the opportunity afforded by the Railroad Administration in appointing a committee of western railroads to inform the traveling public how to comfortably reach the national parks; you should diligently extend and use the splendid cooperation developed during the last three years among chambers of commerce, tourist bureaus, and automobile highway associations for the purpose of spreading information about our national parks and facilitating their use and enjoyment; you should keep informed of park movements and park progress, municipal, county, and state, both at home and abroad, for the purpose of adapting, whenever practicable, the world's best thought to the needs of the national parks. You should encourage all movements looking to outdoor living. In particular, you should maintain close working relationship with the Dominion parks branch of the Canadian department of the interior and assist in the solution of park problems of an international character.

The department is often requested for reports on pending legislation proposing the establishment of new national parks or the addition of lands to existing parks. Complete data on such park projects should be obtained by the National Park Service and submitted to the department in tentative form of report to Congress.

In studying new park projects you should seek to find "scenery of supreme and distinctive quality or some natural feature so extraordinary or unique as to be of national interest and importance." You should seek "distinguished examples of typical forms of world architecture," such, for instance, as the Grand Cañon, as exemplifying the highest accomplishment of stream erosion, and the high, rugged portion of Mount Desert Island as exemplifying the oldest rock forms in America and the luxuriance of deciduous forests.

The national park system as now constituted should not be lowered in standard, dignity, and prestige by the inclusion of areas which express in less than the highest terms the particular class or kind of exhibit which they represent.

It is not necessary that a national park should have a large area. The element of size is of no importance as long as the park is susceptible of effective administration and control.

You should study existing national parks with the idea of improving them by the addition of adjacent areas which will complete their scenic purposes or facilitate administration. The addition of the Teton Mountains to the Yellowstone National Park, for instance, will supply Yellowstone's greatest need, which is an uplift of glacier-bearing peaks; and the addition to the Sequoia National Park of the Sierra summits and slopes to the north and east, as contemplated by pending legislation, will create a reservation unique in the world, because of its combination of gigantic trees, extraordinary cañons, and mountain masses.

In considering projects involving the establishment of new national parks or the extension of existing park areas by delimination of national forests, you should observe what effect such delimination would have on the administration of adjacent forest lands, and, wherever practicable, you should engage in an investigation of such park projects jointly with officers of the Forest Service, in order that questions of national park and national forest policy as they affect the lands involved may be thoroughly understood.

Cordially, yours,

Franklin K. Lane,
Secretary

Mr. Stephen T. Mather,
Director, National Park Servic

FORESTRY NOTES

By Walter Mulford

❦

Laguna Mountain Recreation Area

An important new development of recreation in the open is taking place in San Diego County on the Cleveland National Forest. This is the Laguna Mountain recreation area, very careful plans for which were worked out in advance by the United States Forest Service. The plans are being carried out under expert supervision, and the Forest Service has already spent about $60,000 in the development of the area. It is situated only 14½ miles from the San Diego-Imperial Valley state highway, with which it is connected by an excellent automobile road. It can be reached in a few hours by the people of the hot interior valleys. It has both public camping-grounds and private lots which are leased to individuals for a term of years, thus making it worth while for the lessees to build substantial cabins. Many people are already taking advantage of the opportunity, and Laguna Mountain bids fair to become one of the best outing areas in southern California.

∴

Large Timber Sale in Northern California

One hundred million board feet of national forest timber in Siskiyou, Trinity and Shasta counties has been sold by the United States Forest Service to the Weed Lumber Company. The three counties will receive about $70,000 from this sale, as an act of Congress provides that twenty-five per cent of all national forest receipts be paid to the counties within which the forests are located.

∴

Grazing Animals on the National Forests

To help in meeting war needs, the United States Forest Service in 1918 continued its efforts to secure full utilization of the forage resources of the national forests. In 1917, because of the war, 23,000 more cattle and 71,000 more sheep were placed on the national forests of California than had ever been grazed on them previously. In 1918 the numbers were still further increased by 18,000 cattle and 114,000 sheep. This is said to make an almost complete utilization of the grazing ranges of the national forests.

∴

Sentiment, Cents and Sense

A great recreation center at Laguna Mountain; a large sale of timber in the Shasta region to meet the needs of mankind for wood products;

a greatly increased use of the national forest range to enable greater production of meat, wool and leather—such are some of the uses of forests, each legitimate when in its proper locality and under proper control. Let stockman and lumberman grant that forests are needed for playgrounds as well as to make lumber-piles and stockyards. Let them also realize that love for the forest is a sentiment greatly to be desired, which is already a force in public opinion and is destined to become stronger. On the other hand, let camper and hunter and forest-lover concede that forests must have their purely commercial side, and that it is right that it should be so. Our various interests must needs overlap. Each must yield something. In getting together, we all need broad-minded common sense.

∴

FOREST INDUSTRIES COMMITTEE

An example of this common-sense, get-together-around-the-table policy is shown in the work of the Forest Industries Committee. No changes have occurred in the organization and personnel of this committee as described in the "Forestry Notes" of a year ago. In 1917 California fires burned more than 15,000 acres of standing grain, valued in normal times at more than $375,000; 233,000 acres of timber, valued at about $315,000; and nearly half a million acres of grazing and brush land, a large part of which would have supported grazing animals. Furthermore, Forest Service data showed that it took 1600 "man-months," or the equivalent of 400 men working every day for four months, to put out the 1000 man-caused, or preventable, fires which occurred on the national forests of California in 1917. In the light of these facts, the Forest Industries Committee decided to concentrate its energies for 1918 on a vigorous fire-protection campaign.

THE 1918 FOREST FIRE RECORD

The campaign produced results. On the national forests there was a reduction in 1918, as compared with 1917, of about forty-nine per cent in the number of man-caused fires, seventy-two per cent in the amount of damage done, and seventy-seven per cent in the cost of fighting them. This result was due in part to the vigorous law-enforcement campaign of the Forest Service, which secured 100 convictions out of a total of 110 arrests for starting forest fires. Outside the national forests, twenty-six counties were organized in 1918 for protection against grain, grass, brush and timber fires. Two counties had been organized in 1917. In the twenty-eight counties thus operative in 1918, there were 412 rural fire companies, with over 500 sets of fire-fighting equipment and more than 6000 members pledged to fight fire. The territory thus protected is estimated at over 16,000 square miles, and includes about fifty-six per cent of the grain-producing area of the state. Fire-protection ordinances have been passed by fourteen counties.

The United States Forest Service, the State Forester, the farm bureaus and the Division of Forestry of the University of California have all contributed largely to the fire-protection campaign. Much has been accomplished, but the present system is entirely inadequate for the protection of forests outside the national forests and national parks. It is reported from the State Forester's office that one forest fire in 1918, in Humboldt County, destroyed timber and other property valued at about a million dollars. The State Redwood Park in the Santa Cruz Mountains is frequently threatened. Why can we not all unite in securing thoroughgoing fire protection by the state?

ONE STORM CAUSES TWO HUNDRED FIRES

Lightning started about 200 forest fires between Lake Tahoe and the Oregon line in one storm, on June 28, 1918. The fires were particularly serious in the Klamath region.

⁂

STATE FOREST NURSERY

At the 1917 session of the legislature the State Forester was authorized to expend $14,000 for the establishment of a forest nursery. But the law stipulated that the nursery must be located on state land or on land donated for the purpose. As no suitable area was found which met the provisions of the law, the establishment of the nursery was postponed. This year the State Forester will make an effort to secure from the legislature authorization and funds to buy or rent a suitable site. The plan is that the nursery will furnish stock for planting along the state highways, on school grounds and in small parks in rural communities.

⁂

INFORMATION REGARDING WOOD AND ITS USES

The State Forester has established a wood-utilization service, to give information regarding the properties, uses, markets and available supplies of wood products. Inquiries should be addressed to the State Forester, Sacramento.

⁂

CALIFORNIA WHITE AND SUGAR PINE MANUFACTURERS' ASSOCIATION

Early in the war the California White and Sugar Pine Manufacturers' Association pledged its resources to the Government without reservation. About eighty per cent of the pine cut in 1918 in California has gone into uses recognized as war-time essentials by the Government, and the industry has therefore been given preference in cars, materials of construction and labor. In 1918 the association provided instruction in first aid and sanitation at logging-camps and sawmills. Some of the pine operators have pooled their resources for the purpose of advertising California pine in eastern markets.

California Redwood Association

There are twenty-two sawmill operators now cutting the coast redwood. The California Redwood Association includes sixteen of these operators. The association is conducting a national educational campaign regarding the properties and uses of redwood. Its engineering department has been active in developing the use of redwood for wood-block flooring. A Redwood Emergency Bureau was organized to assist the Government in its war program.

∵

War and the Forest Service

War caused many changes in the United States Forest Service. Nonessential work was suspended. Many projects were postponed until the return of normal times. Short-cut methods have been adopted. Men eligible for military duty were replaced by women or by men not eligible for such service. Much direct help has been given to the various war boards and to the War Department itself.

∵

Tahoe-Yosemite Trail

Among the Forest Service projects postponed because of the war is the completion of the Tahoe-Yosemite Trail. It is but one of the many things on which no work was done in 1918.

∵

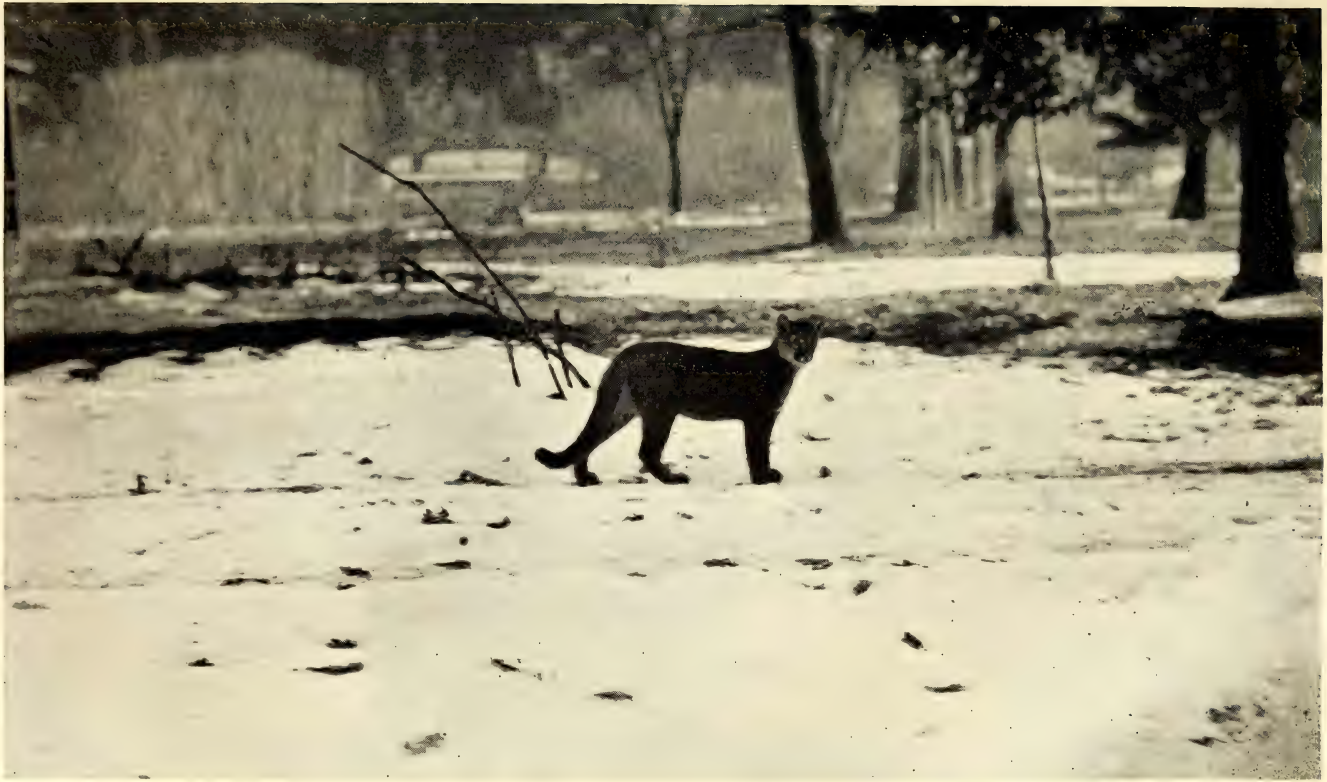
Forestry at the University of California

One hundred per cent of the juniors, seniors and alumni of the Division of Forestry of the University of California joined the colors, and most of the men are still in France. Instruction in professional forestry was therefore almost discontinued in 1918, but work in the elements of forestry for non-professional students was given as usual. In the fall of 1918 the forestry faculty gave a course in military mapping to over two hundred men of the Students' Army Training Corps. The normal work of the forest school will be resumed in August, 1919.

∵

Memorial Trees for Sailors and Soldiers

Memorial trees for sailors and soldiers who gave their lives in the struggle to overthrow autocracy are called the finest tribute that can be paid those heroes in hundreds of letters to the American Forestry Association in Washington. The association is urging the proper setting of memorial trees for whatever memorial may be adopted by the various municipalities. An "Avenue of the Allies," lined with trees in honor of the allied nations, is one suggestion. Another plan being worked out is for the planting of memorial trees along the transcontinental motor highways by the various counties through which such highways pass. The Lincoln Highway Association has taken up this plan.

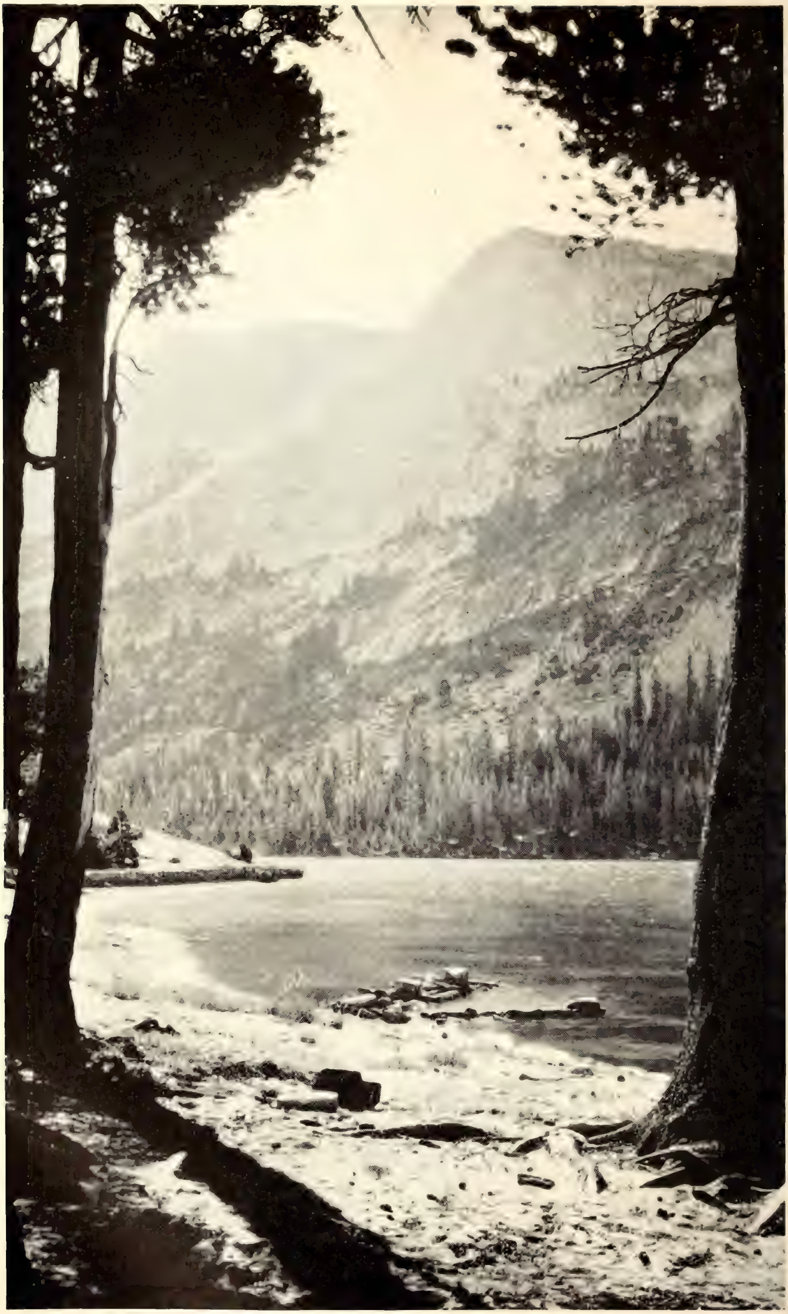


MALE MOUNTAIN LION TWO-THIRDS GROWN—EIGHT MONTHS OLD

One of three cubs captured in May, 1918, and raised as pets

Floor of Yosemite Valley, end of December, 1918

Photo by C. T. Gutleben



TENAYA PEAK AND LAKE TENAYA
From Tioga Road, Yosemite National Park
Photo by Lee L. Stopple

BOOK REVIEWS

ELIZABETH M. BADÈ, Acting Editor

◆

STEEP TRAILS* All who have found John Muir's interpretation of the mountains to be the most beautiful in literature will rejoice in this new collection of papers and letters which Professor Badè has so sympathetically compiled.

Eventually it will be seen that Muir's greatest service was that of recognizing and revealing God as the Infinite Personality who is working in and through nature. Never was he confused by the outward appearance, or by the evolutionary process, for his attitude of mind was that in which he perceived the Creator manifesting Himself in all that is true and beautiful. This insight illumined Muir's heart, and it fills his message with power and life. Personality in God and man; individuality in bird, and tree, and flower, each created for itself but interrelated with all life.

All great souls are in a measure solitary, for their companionship is with the invisible. With the unawakened spirit they may have little true converse. Theirs is an inner world of reality, and they deal with causes rather than with effects. John Muir was most at home when alone in the mountains, for there he found a freedom of spirit that rose above the bondage of city-bound humanity. In *Steep Trails* there are many of these trips into the open paradise of our western country. Up glacier-polished Tenaya Cañon, Muir made so difficult a trip that few have been able to follow him. For a hundred miles around the flower-strewn slopes of mighty Shasta he strolled alone in joyous content. Early and late in the season he forced his way through storm and night to its distant summit, finding in each new experience a fresh revelation of Divine love and purpose.

In all the annals of mountaineering one may hardly find a more thrilling night upon a mountain than was the one which Muir spent upon Mt. Shasta. In order to complete barometric observations he remained on its summit with a companion until overtaken by a blinding storm. Perilous in the extreme was their unseen route along a dangerous ridge, while beyond their progress was halted by the force of the wind and the uncertain darkness. Knowing no fear, Muir would have continued down the icy slope, but, respecting the wish of his companion, he retraced his steps to the fumaroles near the summit, where they spent the night. Unable to stand against the storm, they were compelled to lie in the boiling mud and fight for their lives amid its poisonous gases.

**Steep Trails.* By JOHN MUIR. Edited by WILLIAM FREDERIC BADÈ. Houghton Mifflin Company, Boston and New York. 1918. Pages, xi + 390. Illustrated. Price, $3.00. Large paper edition, $5.00.

Frozen, blistered and starved, they long awaited the dawn, when the storm ceased and they made their way slowly downward to warmth and safety.

In other chapters of poetic beauty Muir describes the wild wool of mountain sheep and relates his experiences and climbs in Utah and Nevada, in southern California, and in Oregon and Washington. Everywhere he studied glaciers and trees, roaming amid the continuous forests which thirty years ago surrounded Puget Sound, and reveling in the luxuriant flora which clothes the lower slopes of Mt. Rainier. He climbed this greatest of all our glacier-hung mountains, 14,408 feet in height, with a party which bivouacked at 10,000 feet on its cheerless stones. Since then the spot has been known as Camp Muir, but it was neither referred to by Muir nor by those who have followed him as an abode of peaceful memories! Under ordinary conditions, Rainier may test the endurance of any climber, but in wind and storm its summit slopes are exceedingly dangerous.

In 1902 John Muir visited the Grand Cañon, describing it with characteristic charm and power. No one has more nearly succeeded in picturing its size, its architecture and sculpturing, and its marvelous coloring. One must view the cañon with his own eyes to realize its grandeur, for an adequate conception may not be conveyed by brush or pen. It contains many groups of mountains of fantastic form and varied hues that glow with sunrise and sunset splendors, or are veiled majestically by clouds and storms. To linger in the presence of the cañon inspires one to nobler thoughts, to truer understanding, and to a deeper realization of the beauty and the immensity of God's creation. Inevitably it measures the development of the person who views it. Some are noisy, but the great soul is silent.

LeRoy Jeffers

⁂

Jungle Peace* William Beebe, director of the Tropical Research Station in British Guiana and curator of the ornithological section of the New York Zoological Park, is more than a naturalist. He knows how to set forth the results of tropical research in a fascinating manner. It would be hard to find a book that reveals the life of the tropics in a more interesting way. Here, in a chapter on "The Hoatzins at Home," we have the best description in English literature of that curious bird which still preserves, in the clawed wings of its young, the evidence of its reptilian ancestry. Even the inherited association with the water, from which the original bird-reptile emerged, is not wanting. A thrilling episode in another chapter is the noosing of a bushmaster eight feet long for the New York Zoological Park. This is one of the most dreaded serpents of the tropics, and the capture of this monster was a real adventure. "The snake lashed and curled and whipped up a whirlpool of debris, while one of us held grimly on to the noose and the rest"—but the story is too long to be reported in a review, and no lover of literature and wildness must be provided with an excuse for not reading this remarkable book.

**Jungle Peace.* By William Beebe. Illustrated from photographs. Henry Holt & Company, New York. 1918. Pages, 297. Price, $1.75 net.

The dedication to Colonel and Mrs. Theodore Roosevelt calls to mind another of the many interests of the greatest American citizen of our time who has just passed on. Mr. Beebe relates that when the idea of a tropical research station occurred to him, Colonel Roosevelt was the first person with whom he discussed it. "In all my undertakings under the auspices of the New York Zoological Society," he writes, "I have found his attitude always one of whole-souled sympathy, checked and practicalized by trenchant criticism and advice. For Colonel Roosevelt, besides his other abilities and interests, is one of the best of our American naturalists. To a solid foundation of scientific knowledge, gained direct from nature, he adds one of the widest and keenest experiences in the field. His published work is always based on a utilization of the two sources, and is characterized by a commendable restraint and the leaven of a philosophy which combines an unalterable adhesion to facts, with moderation of theory and an unhesitating use of the three words which should be ready for instant use in the vocabulary of every honest scientist, 'I don't know.'" W. F. B.

⁂

SUNSET CANADA* After the holidays are over and regularity once more prevails, we begin to plan for the summer outing. Which of the many alluring retreats is going to be our choice for this year? After reading *Sunset Canada,* by Archie Bell, it seems impossible not to scheme and plot some way to arrive in that part of Canada where sets the golden sun. So ardently does the author describe his various western visits that all his pages seem to lead one involuntarily thither.

The first chapters are about Victoria and its environs. From this quaint city the author passes to her granddaughter, Vancouver, with her modern buildings and magnificent parks. In the luxuriant forests around the city can be seen the spectacular and thrilling operation of hauling logs over a mountain by means of a cable attached to a railroad locomotive. Prettily interwoven with the wildwood descriptions are rare Indian legends.

Then come chapters on Prince Rupert, its origin, and outlying districts, the Grand Trunk Pacific Railroad, with its points of interest, and the thoroughly Anglican communities—for the English always bring their habits with them. One is constantly surprised to find agricultural lands amidst such rugged and inspiring scenes. As in Norway, the hanging meadows, seen from a distance, look like framed pictures on a wall of gray cliff.

***Sunset Canada, British Columbia, and Beyond.* By ARCHIE BELL. With illustrations in black and white and in color. The Page Company, Boston. Pages, 320. Price, $3.50 and postage.

A dazzling array of marvels is exhibited in the chapters on Jasper Park, Mt. Robson Park, Maligne Lake—more beautiful, according to the author, than the accepted jewel of them all, Lake Louise—Banff, and Field, with their *entourage.*

The author makes one feel that western Canada is enchanted ground, created for the relaxation and enjoyment of him who turns for his diversion to the vast out-of-doors. Here forest and cliff, lake and glacier, work that spell which enables one to return to his regular routine with renewed strength.

LENA R. CARLTON

∴

FAR AWAY AND LONG AGO* There is much in the writings of W. H. Hudson that tempts one to call him the John Muir of South America. The comparison is not based upon similarity of style, for in that respect their work differs widely. Muir's style suggests the dignified beauty of the mountains; Hudson's, the graceful curves cut by leisurely streams on the green plains of Argentina. But the two men resemble each other strongly in their intense love of nature. Both, too, were naturalists with a fine poetic insight that enabled them to relate their observations in a captivating manner. In this book Hudson tells the story of his boyhood on the illimitable Argentine pampas. It is a wonderful tale of strange characters who dwelt in those vast solitudes; of the gauchos, or Argentine cowboys, and their quarrels and primitive modes of life; of Buenos Aires in the 40's when the long-forgotten Dictator Rosas was ruling the city with murder and violence; of swashbucklers, Jack the Killers, and women strange and beautiful. Into this varied human material he has woven the story of his early life, with fascinating descriptions of birds, trees, flowers, armadillos, and vizcachas. In point of interest and importance this book deserves to rank among the twelve best books of the year. Any lover of the great outdoors who leaves this book unread cuts himself off from a great enjoyment.

W. F. B.

∴

TENTING TONIGHT† The name of the author alone will assure the reader of a treat in store. It is the story of a summer adventure which carries one to Glacier National Park. But, more than that, the party crosses Gunsight Pass and enters a region unknown to the tourist, a region of fascinating forest, trail and stream. The culminating event of the season is a four-day boat trip through the cañon of the Flathead River. Rapids are run, portages are made, and with success comes the reward briefly told: "It has never been done before." Incidentally the writer gives a capital picture of camp life of the type in which neither time nor money has been spared.

H. M. LE C.

***Far Away and Long Ago.* By W. H. HUDSON. E. P. Dutton & Company, New York. 1918. Price, $2.50 net.

†*Tenting Tonight.* By MARY ROBERTS RINEHART. Houghton Mifflin Company, Boston and New York. Illustrated. Price, $1.75 net.

Our National Forests[*] Well written, well illustrated, well printed; enjoyable in the reading, and leaving such a good after-taste that anyone interested in our national forests will want to keep it on his shelves—such is this recently published book descriptive of the purposes and methods of the national forests. The four sections of the book deal respectively with the creation and organization of the national forests—their administration, their protection, and the sale and rental of national forest resources.

W. M.

⁂

Camping Out[†] In this book the editor of *Field and Stream* gives in compact form, and from the experience of over thirty years, advice for those who desire to enjoy real camping out. He takes up the subject from the point of view of different modes of travel, such as packing afoot (or, as we call it, "knapsacking"), traveling with pack animals, on horseback, or in canoe. He also considers it from the point of view of degree of comfort in camping, from the simple and compact outfit necessary for, say, a packing trip in the Adirondacks in midwinter, to the luxurious permanent camp or automobile camp. In addition, the book is a delightful narrative as well, and is exceedingly interesting reading for anyone fond of outdoor life. The material is, however, applicable more to camping conditions east of the Rocky Mountains than to our style of camping in the Sierra Nevada Mountains.

W. E. C.

⁂

Practical Bait-Casting[‡] This book contains subject-matter of interest to tournament casters and anglers. The first half of it gives an excellent description of the rods, lines, reels and lures used for practical (as also scientific) bait-casting, followed by lessons in the proper methods of using them. These are illustrated by photographic prints, to make them clear to the reader; and the subject of the photographs is one of America's famous tournament casters and fishermen, snapped in action. The second half of the book describes the application of the tackles and methods of the first half to actual fishing conditions.

This is not a large or an expensive book, but it contains a store of valuable fishing advice and wisdom, and belongs in the library of all anglers or would-be anglers, and is especially recommended to Californians for the following reasons: The principles described and the practice of them are well known in the eastern states, chiefly as used in the successful taking of black bass. But, although this fish is now abundant in many parts of California, proper methods for its taking are not either well known or in general use. It is a game fish, a tough fighter after being hooked, and excellent for eating. And the fisherman who will master such wisdom as is contained in Mr. St. John's book, and put it in practice along the streams of California's central valley, will find such fishing as will almost satisfy the longings of an angler's soul.

---

[*] *Our National Forests.* A short popular account of the work of the United States Forest Service on the national forests. By Richard H. Douai Boerker. The Macmillan Company, New York. 1918. Price, $2.50.

[†] *Camping Out.* By Warren H. Miller. George H. Doran Company, New York. 1918. Price, $1.50 net.

[‡] *Practical Bait-Casting.* By Larry St. John. Illustrated. The Macmillan Company, New York. Price, $1.00.

C. F.

∴

OUR CITIES AWAKE* To the layman this book appears something prophetic, somewhat on the plane of the ideal; yet it abounds in statistics and tabular statements of facts which represent actual achievements in a city awake and up and doing!

Everything from garbage disposal to community singing and child welfare comes under the head of "Public Works" in a city where the mayor and the director of public works combined unselfish love of their kind with efficiency and practical sense.

In conclusion, the author says: "As America calls millions for military duty overseas, so she calls tens of millions for civic duty here. The goal is absolutely the same—the enfranchisement of the human spirit."

H. M. LE C.

∴

THE HUMAN SIDE OF ANIMALS† For boys who still think it the funniest joke ever to tie a tin can to a dog's tail, or to heave a stone at a cat, no better book than this could be written. Thoughtless grown-up people, too, could learn from this book how to treat their dumb neighbors as fellow beings.

What is usually accepted as instinct in animals the author interprets as intellect. He examines many kinds of animal, from the cat and cow of our own home-place to the lemming of Scandinavia and the zebra of African wilds. He shows us how these animals live as human beings. The young of a species play to exercise their muscles and to strengthen those which will be most used later in life. All animals prepare, with their own individual weapons, for the great and terrible war which has always existed in the world. The warfare of nations has stopped, but the battles of individuals will long continue. Are not animals even better equipped for strife than superior man?

Perhaps the most interesting chapter—unless we except the one on the "Allies of Men"—is the one on food conservation. Let us hereupon release the polecat from a part of his huge burden of odium. He makes a storehouse near his home, and this he fills with frogs and lizards and insects, so that his children may have plenty of fresh meat.

---

* *Our Cities Awake.* By MORRIS LLEWELLYN COOKE. Doubleday, Page & Co., New York. 1918. Price, $2.50 net.

† *The Human Side of Animals.* By ROYAL DIXON. Illustrations in color and in black and white. Frederick A. Stokes Company. Cloth, 8vo. Price, $1.75 net.

His victims are so cleverly bitten through the head that they remain alive but are unable to escape. Thus are the young cats provided with fresh meat, which they have the joy of catching themselves. Let us laugh at the odd appearance of Mrs. Porcupine. She decides on grapes today for the menu of her family. She goes forth to a vine where plenty abounds, shakes the vine, rolls carefully in the grapes as only porcupines know how, and proceeds homeward, a grape on the end of each quill!

In the last chapter the author gives remarkable Biblical proof of the immortality of the animal soul.

LENA R. CARLTON

∴

THE WORTH WHILE IN THE SOUTHWEST* This is a convenient little volume to tuck in a suitcase. Even if you do not visit all the Indian villages in the leisurely fashion advised by the author, you may at least become better acquainted with the picturesque pueblos, the arts, legends and ceremonial dances of the Hopis and Zunis. There is fascination in the mellow tints of mesa and cliff, wonder for the sixteenth-century Spanish explorers, and awe for the prehistoric dwellings of Montezuma's descendants. Particularly interesting are the chapters on the village of Acoma and El Morro, the autograph rock of the Conquistadores.

H. M. G.

∴

THE MELODY OF EARTH† This is a collection of garden and nature poems selected by Mrs. Waldo Richards from the poets of the present day or those who have written within the last ten years. Most of the poems are by American writers, but we also find the names of Verhaeren, Rabindranath Tagore, Yates, Noyes, Masefield and other English and Irish writers in the list of authors represented.

The headings of the different groups of poems indicate the variety of garden pictures—"Within Garden Walls," "The Pageantry of Gardens," "The Gardens of Yesterday," "The Lost Gardens of the Heart." There are poems of every season—of lilac time and Indian summer, of the roses of June and the snows of winter. There are exquisite songs of the coming of spring birds, of the nightingale at sunset, of the whirring hummingbird and dainty butterfly. Every phase of garden life is pictured, from the romances of the stately old gardens overseas to the homely virtues of the vegetable gardens of the present day, with a special "Grace for Gardens," for the "beans and peas and the corn full on the ear," which should have been chanted by every war-gardener.

In the group called "Pasture and Hillside" we are taken farther afield, and in "Underneath the Bough" we find poems not only to the familiar trees that become garden friends, but also a song to one known to Sierrans in the high mountains, "A Lady of the Snows," as Miss Harriet Monroe charmingly describes the mountain hemlock.

---

* *Finding the Worth While in the Southwest.* By CHARLES FRANCIS SAUNDERS. Illustrated. Robert McBride & Co., New York. 1918. Price, $1.25 net.

† *The Melody of Earth.* Edited by MRS. WALDO RICHARDS. Houghton Mifflin Company, Boston and New York. 1918. Price, $1.50 net.

Even the mountain climber who agrees with Joyce Kilmer when he says,

> "I think that I shall never see
> A poem lovely as a tree,"

will find this collection a very delightful book to have with him for a noon-hour in the shade of a pine.

E. Le B. B.

⁂

A Guide to the National Parks of America* This is a practical guide to the national parks, dealing more with routes, accommodations, etc., than with scenic descriptions. The author takes up the parks in the general order of their magnitude and importance, beginning with the Yellowstone. Here will be found detailed information concerning rail and stage transportation, hotels and camps, with fares and daily rates as authorized by the Government. All tours, either by stage or by pack train, are included. The author also gives advice on the necessary equipment for the national park visitor, and the more important park regulations in force at present.

J. N. Le C.

⁂

Sign Talk† More than twenty years of serious study of the sign-language of the American Indian lie behind Ernest Thompson Seton's preparation of this illustrated dictionary of 1600 signs used by the Indians of the Great Plains. He is conversant with all the elaborate codes prepared by American army officers, with the writings of Indian agents and missionary workers who were experts in gesture language, and has taken his own manuscript from tribe to tribe for consultation with the best sign-talkers of the present day. The sign-talk of the Cheyenne tribe is taken as a standard, as theirs has been simplified to become largely a one-hand code; but some signs of other tribes have also been added, as well as a hundred or more used by the deaf in Europe and America.

So enthusiastic is the author about the uses of sign-language that he proposes it as the future universal world language. With this thought in view, he has added the French and German equivalents of the English word expressing the root-idea of each sign. Among the many advantages which the author finds for the Indian sign-language over the complete sign code of the deaf is that the former expresses ideas instead of spelling out words, and therefore can be used by people with

---

**A Guide to the National Parks of America.* Compiled and edited by Edward Frank Allen, editor of "Travel." Robert McBride & Company, New York. 1918. Price, $1.25 net; postage extra.

†*Sign Talk.* By Ernest Thompson Seton. Doubleday, Page & Co., Garden City and New York. Price, $3.00.

no knowledge of the spelling of words, and between people who know different languages.

Even if we do not share in the anticipation of a future of universal sign-talking, we should be grateful for the patient research which results in preserving to us so much of the fast-disappearing life of our American Indians. E. LE B. B.

∴

GUIDE TO JASPER PARK* Published by the Department of the Interior, Ottawa, this guide to Jasper Park gives a very comprehensive description of one of Canada's largest and most beautiful playgrounds. An account of the early history of the region, quoting from thrilling narratives of the first explorers, fur-traders, and missionaries to the Indians, forms an interesting chapter. The descriptive material is profusely illustrated with beautiful photographs, not only of the scenic wonders of the park, but also of the fauna and flora. A list is given of trips to be taken in the region, with details of distance, time, and height of peaks, that makes one wish to follow each careful direction and see for one's self the lofty peaks, snowy cirques, glacial rivers and quiet lakes of this Rocky Mountain park.

It is well printed and bound in an attractive green flexible binding. Six topographical maps go with it. E. LE B. B.

∴

IN THE WILDS OF SOUTH AMERICA† This book embodies the experiences of a field naturalist and collector during six years in the tropical wildernesses of South America. Altogether Mr. Miller covered over 150,000 miles in his expeditions, circling the coast region of all that part of the southern continent which lies north of Buenos Aires. The opening chapters relate to explorations in Colombia. Then follows the story of his adventures and observations during an ascent of the Orinoco to the mysterious Mt. Duida. The reader catches glimpses of rubber camps where orgies of dissipation and occasional wholesale murders take place, when the bands of natives, returning from the forest, are paid for their deliveries of rubber. A chapter on "Life in the Guiana Wilds" tells of the interesting custom, called "beena," among the Patamona Indians, which is thought to insure success on a hunt. Several chapters are devoted to the Roosevelt South American Expedition, to which Mr. Miller was attached as field naturalist. The chapter entitled "A Forty Days' Ride Through Wildest Matto Grosso" should satisfy the most exacting reader of exploration literature. Here is found a description of the Salto Bello Falls, where

---

***Description of and Guide to Jasper Park.* Published by the Department of the Interior, Ottawa. 1917. Pages, 97. Price, 50 cents. Sold by Railway News Company, Winnipeg, Manitoba.

†*In the Wilds of South America.* By LEO E. MILLER, of the American Museum of Natural History. With over 70 illustrations and a map. Charles Scribners' Sons, New York. 1918. 8vo. Pages, xiv + 424. Price, $4.50 net.

the Papagayo River, fully five hundred feet wide and containing an enormous flow of water, plunges into a gorge in a sheer drop of two hundred and eighty feet. The height of the fall exceeds that of Niagara by more than a hundred feet, and the roar of the water is said to be awe-inspiring in the extreme. After leaving the Roosevelt Expedition, Mr. Miller went down the west coast of Peru, crossed the central Bolivian highlands, and passed down into Argentina. Any one who is interested in the little-known savages of South America should read his chapter on "The Yuracaré Indians of the Rio Chimoré." Throughout the volume the natural-history interest of the reader is satisfied by delightful descriptions of South American birds and mammals, many of them quite rare. Who would not like to know about the habits of a night-monkey no bigger than a good-sized mouse, or an ant-eater, with a wonderful golden fur, that lives a diurnal life in the tree-tops? We regret that we are unable to devote as much space to the volume as it deserves. We recommend it warmly as a most entertaining and informing volume. It contains a map and more than seventy photographic illustrations. The frontispiece is a beautiful color plate of the cock-of-the-rock, a rare bird of gorgeous plumage, whose nest and eggs Mr. Miller found for the first time.

W. F. B.

⁂

"TOURING AFOOT"* This little work is well worth reading, and is of the greatest possible interest to all trampers and mountaineers. It is also of a special interest to knapsackers, those who "back-pack." While we do not agree with everything the author says, largely because western conditions are somewhat different from those found in the east, he gives every evidence of knowing what he is writing about. His suggestions on the various kinds of back-packs, footwear, making of caps, outdoor beds, food list and light-weight mess kit are full of valuable suggestions.

W. E. C.

⁂

We are in receipt of the 1918 *Annual of the Mountain Club of South Africa,* published by the Cape Town Section. It is a publication of 158 pages, with a large number of photo-engravings which convey a clear idea of mountain scenery in the Transvaal and in the vicinity of Cape Town. There are a number of interesting articles illustrating climbs undertaken by South African mountaineers. We welcome to our library this new acquaintance from the antipodes.

**Touring Afoot.* By C. P. FORDYCE. Outing Publishing Company, New York. Price, 80 cents.

For Hikers' Supplies see

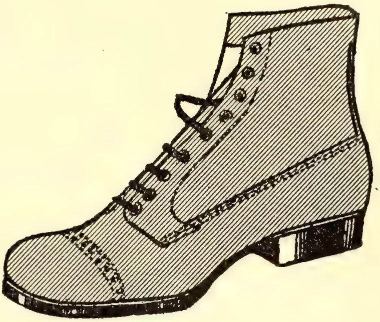
W. DAVIS & SONS

333 MARKET STREET
SAN FRANCISCO

Leggings
Knapsacks
Blankets
Shoes
Leather Goods
Saddlery
Hand Bags
Trunks

HERCULES
CAMP

Wool Camp Blanket



Munson Last Walking Shoe

FOR THE ANNUAL OUTING

you will want a supply of fresh and dependable films—ones with which you can be sure of getting those pictures which you never will have an opportunity to retake.

AFTER YOU COME BACK

you will want them developed and printed in a modern laboratory with up-to-date equipment and careful workmen to get the best possible results from your exposures. From the best ones you will want some artistic enlargements.

These are some of the advantages we have to offer you

Marsh & Co.

KODAKS AND PHOTO SUPPLIES
712 MARKET STREET SAN FRANCISCO

"Our Business is Developing"

A book for every outdoor lover

STEEP TRAILS

BY JOHN MUIR

EDITED BY WILLIAM FREDERIC BADÈ

Some of John Muir's best writing is to be found in this last of his posthumous books, which begins with a charming paper on the mountain sheep, or bighorn, of the Sierra Nevada and ends with a glowing account of the Grand Cañon. Other vivid chapters deal with Mt. Shasta, Mt. Rainier, Puget Sound, Oregon, Utah, the Nevada desert, the Sierra, and the San Gabriel Mountains, and include stories of strenuous adventures as well as such delightful description of the scenery and wild life of the West as only John Muir could write.

"No one who loves the out-of-doors should fail to read this volume. Perhaps no other book so adequately presents the scope of Muir's genius." — *Cleveland Plain Dealer*

Illustrated. $3.00 net

Boston **HOUGHTON MIFFLIN COMPANY** ***New York***

H. C. Golcher Company

OUTING SUITS
SLEEPING BAGS
OILED SILK
DUNNAGE BAGS
LUNCH BAGS
PACK STRAPS
FLASH LAMPS
LANTERNS
MOSQUITO HEAD NETS
EYE SHIELDS
BOOTS & SHOES
SOX
GLOVES
LEGGINGS
FISHING TACKLE

Your inspection of our goods is cordially invited

508 MARKET STREET, SAN FRANCISCO
TELEPHONE GARFIELD 828

MEMBERS OF SIERRA CLUB & FRIENDS

To **William T. Goldsborough,** Dr.

Insurance Broker

Telephone Sutter 4925 234 Bush Street San Francisco, Cal.

	DATE	COMPANY	PREMIUM

Fire
Life
Bonds
Accident
Burglary
Automobile
Liability

I would like to send YOU a Bill.

All kinds of Insurance negotiated with the Best Companies.

I want YOUR Business—large or small.

Ask me about Rates and Policies.

CAMPING EQUIPMENT

AUTOMOBILE OUTFITS

WE MAKE AND CARRY A FULL LINE OF SPECIALTIES FOR VACATION TOURISTS

LAWN, PORCH *and* CAMP FURNITURE

Send for our Free Illustrated Catalog

W. A. Plummer Mfg. Company

Front Street at Pine, San Francisco. Phone Kearny 5560

SPIRO'S
307 MARKET ST.
OAKLAND STORE
1127 BROADWAY
Everything for the "Lovers of Outdoor Life.

The Camper, Hiker, Autoist and Sportsman can find in our varied stock all the necessaries that add comfort to the body, the camp or the trip en route

HIKING OUTFITS, RUCKSACKS,
TENTS AND CAMP SUPPLIES
EASTMAN KODAKS

MANUFACTURERS AND SOLE DISTRIBUTORS OF

SPIRO'S "SIERRA"
SLEEPING OUTFITS
"They're the Best"

ARMY AND NAVY GOODS

The regulation U.S. Army Tramping Shoes
The regulation U. S. Olive Drab Shirts
The regulation U.S. Olive Drab Blankets

U. S. Knapsacks, Shelter Tents, Ponchos and many of the other useful articles required in the U. S. Army and Navy Service

THE SPIRO CO.
The Sportsman's Store
307 MARKET ST.
SAN FRANCISCO
Oakland Store: 1127 Broadway

Goldberg, Bowen & Co.

Wholesale and Retail

Grocers

TEA, COFFEE AND WINE MERCHANTS

Established 1850

We carry everything for the camping trip, such as condensed soups, potted meats, beef extracts and delicacies of all kinds.

We take great pains to pack according to instructions left, and try to please in every way.

When you are far away you want fresh goods of the best quality, and they must be packed properly.

Main Store and Shipping Depot

242 SUTTER STREET SAN FRANCISCO, CAL.

SPALDING

The Mark of Quality
Throughout the
World

A. G. SPALDING
& BROS.

156 Geary Street
San Francisco

416 Fourteenth Street
Oakland

Complete Outfits for
Life in the Open in
Khaki and Olive
Drab for Men
and Women

❦

Hunting, Riding and
Norfolk Coats
Plain Walking, Shell
and Divided Skirts
Breeches and
Bloomers, Middy
Blouses, Leggings
Hats, Etc.

NORTHWESTERN PACIFIC

Traverses Marin, Sonoma, Mendocino, Trinity and Humboldt Counties, the territory that appeals to the hiker and lover of primitive out-of-door sports

---

A & E

EVERY TWO HOURS

during the day, a fast electric train leaves
San Francisco, Key Route Ferry Depot

to SACRAMENTO

Fast comfortable service through some of
the prettiest spots in Central California.

Write for Time Table and Rates

OAKLAND, ANTIOCH & EASTERN
RAILWAY

L. H. RODEBAUGH, Traffic Manager OAKLAND, CALIFORNIA

219 POWELL STREET SAN FRANCISCO, CAL.

PILLSBURY'S PICTURES

INC.

KODAKS FILMS FINISHING

Large Collection of California Views

When in Yosemite we invite you to visit our branch Studio, where you will find much of interest Our prices same as city prices

---

TAMALPAIS HIKERS

In Order to Popularize Hiking on the Mountain

THE MT. TAMALPAIS & MUIR WOODS RAILWAY

will establish the following rates between intermediate points on its line, effective March 1 to October 1, 1917

		One Way	Round Trip
Between Mill Valley and	Mesa	$0.50	$0.90
	West Point	.75	1.40
	Tavern	.90	1.50
	Muir	.90	1.50
Between Mesa and	Muir Woods	.50	.90
	West Point	.35	.60
	Tavern	.50	.90
Between West Point and	Tavern	.25	.40
	Muir	.75	1.40
Between Tavern and Muir Woods		.90	1.50
Between Mine Ridge Bridge and	Mill Valley	.65	1.25
	Mesa	.25	.40
	West Point	.50	.90
	Tavern	.65	1.25
	Muir	.35	.60

Tickets on sale at Mill Valley Ticket Office, Tamalpais Tavern and Muir Inn

TENTS

Oiled Silk Sleeping Bags Lined
with Lambs' Wool, Regulation
Sierra Club Dunnage Bags,
Hammocks, Camp Furniture,
Flags, Folding Cots

IF IT'S MADE OF CANVAS WE MAKE IT

* * *

W. A. Plummer Mfg. Company

Pine and Front Streets, San Francisco. Phone Kearny 5560

Send for our Free Illustrated Catalog

ON A HIKE—*You Will Need*

A Kodak IT WILL SERVE YOU FOR DELIGHTFUL RECOLLECTIONS OF EVERY TRIP

A Pedometer WILL INSTANTLY TELL YOU HOW FAR YOU HAVE WALKED

A Field Glass WILL DOUBLE THE PLEASURE OF THE HIKE

We Also Do Developing and Printing

THE QUALITY KIND—FOR THE ONE WHO KNOWS

GEO. H. KAHN

Optician & Photo Supplies

34 KEARNY STREET SAN FRANCISCO

MEMBERS OF SIERRA CLUB & FRIENDS

To William T. Goldsborough, *Dr.*

Insurance Broker

Telephone Sutter 4925 211 First National Bank Building San Francisco, Cal.

	DATE	COMPANY	PREMIUM

Fire
Life
Bonds
Accident
Burglary
Automobile
Liability

I would like to send YOU a Bill.

All kinds of Insurance negotiated with the Best Companies.

I want YOUR Business—large or small.

Ask me about Rates and Policies.

FOR THE RECORDS OF 1776

You must go to history, but for the events of 1918 and what is to follow your

Kodak Album

will tell a vivid story.

Your Films are safe in our hands

"Our Business is Developing"

Marsh & Co.

712 MARKET STREET SAN FRANCISCO

Mail Orders Solicited

KODAKS **SUPPLIES**

Yosemite National Park

CALIFORNIA'S GREAT SCENIC ATTRACTION

THE DIRECT AND COMFORTABLE WAY IS VIA THE

Yosemite Valley Railroad

A scenic trip through the Merced Cañon. Observation-parlor cars by day, Pullman cars by night from Los Angeles and San Francisco.

YOSEMITE TRANSPORTATION CO. AUTOMOBILE LINE

From El Portal to hotel or camp in the valley, over a macadam road, wide and smooth, sprinkled daily to keep down the dust. Passes in full view of many of the scenic features—El Capitan, Bridal Veil Falls, Half Dome.

THE BIG TREES OF CALIFORNIA

The Tuolumne, Merced and Mariposa Groves may be visited by short automobile trips from El Portal or Yosemite, without loss of time.

BUY ROUND-TRIP TICKETS TO YOSEMITE

Via Southern Pacific or Santa Fe to Merced and the Yosemite Valley Railroad. This is the direct way; this is the comfortable way; the way most people go, a combination of rail and auto unexcelled. See any railway ticket agent for information and folder, or address:

Yosemite Valley Railroad Company
MERCED, CAL.

Ask for descriptive folder or consult any railroad ticket agent

H. C. Golcher Company

Can Supply

OIL SILK
HEAD NETS
DUNNAGE BAGS
LEGGINGS
PACK STRAPS
FLASH LAMPS
FISHING TACKLE
GLOVES
LUNCH BAGS
LANTERNS
BOOTS
SHOES
SLEEPING BAGS
EYE SHIELDS

Please call or write us if interested

508 MARKET STREET, SAN FRANCISCO
TELEPHONE GARFIELD 828

Gantner & Mattern Co.

GRANT AVE. AT POST ST.

MOST EXTENSIVE
DISPLAYS

KNITTED SPORTS
APPAREL

AT MODERATE PRICES

SWEATERS SPORTS COATS
SPORTS HOSE
BATHING SUITS
ATHLETIC AND "GYM" SUITS

"You know our qualities"

THE CRUISE
OF THE CORWIN

BY JOHN MUIR

EDITED BY WILLIAM FREDERIC BADÈ

Every lover of nature and travel books will relish this volume describing John Muir's adventures and experiences while a member of the Corwin expedition to the far North in search of the Artic explorer DeLong.

"A valuable addition to Mr. Muir's works. The admirable work of the editor is worthy of the highest praise." ***Congregationalist.***

Illustrated. $2.75 net

Boston **HOUGHTON MIFFLIN COMPANY** ***New York***

307
Market Street
San Francisco

SPIRO'S

1127
Broadway
Oakland

The Sportsmen's Stores

Manufacturers and Sole Distributors of

"Spiro's Improved Sierra Club Sleeping Outfits"
(*You Sleep Outdoors in Real Comfort*)
Spiro's Alpine Ruck Sacks
Spiro's Sierra Club Dunnage Bags
Spiro's Sierra Club Pack Straps

Purveyors to the

Lovers of Outdoor Life

The Camper, Hiker, Autoist and Sportsman can find in our varied stock all the necessaries that add comfort to the body, the camp or the trip en route.

Illustrated Catalogue Free

TENTS

Oiled Silk Sleeping Bags Lined with Lambs' Wool, Regulation Sierra Club Dunnage Bags, Hammocks, Camp Furniture, Flags, Folding Cots

IF IT'S MADE OF CANVAS WE MAKE IT

W. A. Plummer Mfg. Company

Pine and Front Streets, San Francisco. Phone Kearny 5560

Send for our Free Illustrated Catalog

MEMBERS OF SIERRA CLUB & FRIENDS

To **William T. Goldsborough,** Dr.

Insurance Broker

Telephone Sutter 4925 211 First National Bank Building San Francisco, Cal.

	DATE	COMPANY	PREMIUM

Fire
Life
Bonds
Accident
Burglary
Automobile
Liability

I would like to send YOU a Bill.

All kinds of Insurance negotiated with the Best Companies.

I want YOUR Business—large or small.

Ask me about Rates and Policies.

PICTURES will keep your trip forever fresh in your memory. In these days of simplified apparatus anyone can handle a Kodak. You can make your own record in your own way. ℭ We have supplied photographic outfits for many Sierra Club members. Let us help you to make your trips more enoyable.

Marsh & Co.
KODAKS
712 MARKET ST. SAN FRANCISCO

Yosemite National Park

CALIFORNIA'S GREAT SCENIC ATTRACTION

THE DIRECT AND COMFORTABLE WAY IS VIA THE

Yosemite Valley Railroad

A scenic trip through the Merced Cañon. Observation-parlor cars by day, Pullman cars by night from Los Angeles and San Francisco.

YOSEMITE TRANSPORTATION CO. AUTOMOBILE LINE

From El Portal to hotel or camp in the valley, over a macadam road, wide and smooth, sprinkled daily to keep down the dust. Passes in full view of many of the scenic features—El Capitan, Bridal Veil Falls, Half Dome.

THE BIG TREES OF CALIFORNIA

The Tuolumne, Merced and Mariposa Groves may be visited by short automobile trips from El Portal or Yosemite, without loss of time.

BUY ROUND-TRIP TICKETS TO YOSEMITE

Via Southern Pacific or Santa Fe to Merced and the Yosemite Valley Railroad. This is the direct way; this is the comfortable way; the way most people go, a combination of rail and auto unexcelled. See any railway ticket agent for information and folder, or address:

Yosemite Valley Railroad Company

MERCED, CAL.

Ask for descriptive folder or consult any railroad ticket agent

H. C. GOLCHER CO.

can supply

Oil Silk
Head Nets
Dunnage Bags
Leggins
Pack Straps
Flash Lamps
Fishing Tackle
Sleeping Bags
Eye Shields
Gloves
Lunch Bags
Lanterns
Shoes
Boots

Please call or write us if interested

508 MARKET ST. SAN FRANCISCO

Telephone Garfield 828

Gantner & Mattern Co.

Buy Your

Knitted Sports Apparel

(For Hiking and Outdoor Sports)

From

Gantner & Mattern Co.

"HEADQUARTERS"

SWEATER COATS, HOSIERY, BATHING SUITS UNDERWEAR

Made in San Francisco. Awarded 3 Grand Prix, P. P. I. E.

ALL MODERATELY PRICED

Grant Avenue at Post Street

Spend Your Vacation

with

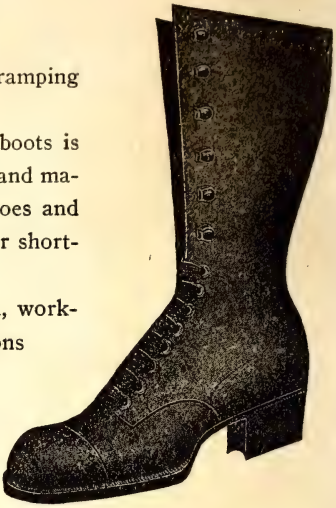
DESMOND

Footwear

is all essential for comfortable tramping—every hiker knows that.

The most complete variety of boots is at our shops—every style, height and material; likewise gray buckskin shoes and other lighter footwear suitable for shorter tramps.

Prices as low as good material, workmanship and present conditions permit.



SOMMER & KAUFMANN

119 Grant Avenue

838 Market Street

Tour the Rockies of

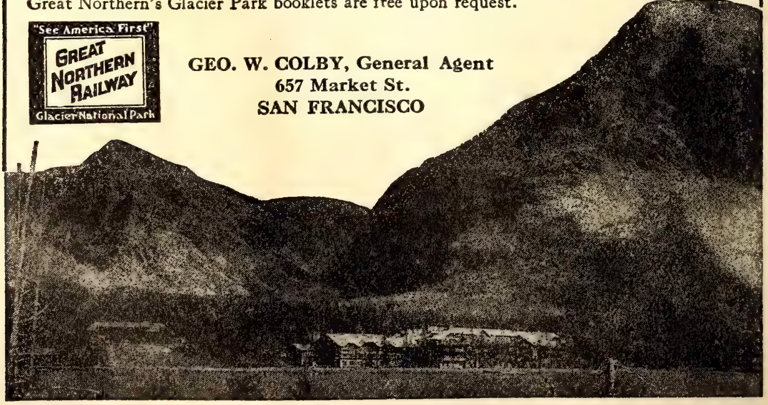
Glacier National Park

Season June 15 to October 1

Rocky Mountainland—that's Glacier Park. Next summer plan to follow its skyland trails over the Continental Divide. Varied tours by auto-stage and saddle-horse are available; mammoth hotels-in-the-mountains and Alpine chalet groups afford unique entertainment enroute. The Great Northern's Glacier Park booklets are free upon request.

"See America First"
GREAT NORTHERN RAILWAY
Glacier National Park

GEO. W. COLBY, General Agent
657 Market St.
SAN FRANCISCO



"Cline-Maid"

Outing and Riding Habits

Made to your measure, of

Khakies
Whipcords
Corduroys
Moleskins
Armidux
Woolens

Suits $7.50 to $35

Hats Made to Order

Send for Catalogue

Sleeping Bags
Dunnage Bags
Knapsacks
Sierra Boots
Wool Sox
Rollups
Folding Lanterns

Write for Catalogue

Cline-Cline Co.
SUCCESSORS TO DYAS-CLINE CO.

214 West Third Street and
Spring at Sixth
LOS ANGELES

NEW OUTDOOR BOOKS

JOHN MUIR'S

A THOUSAND-MILE WALK TO THE GULF

This is John Muir's journal of his tramp from Indiana to Florida in 1867, and of his trip thence to Cuba and finally to California. This was Muir's first adventure into the world of his life work as a student of nature—his matriculation, as he himself would have put it, in the "University of the Wilderness," and he writes with all the fresh enthusiasm of such an adventure at twenty-nine, and with good measure of the literary art that distinguishes his later writing. It was primarily a botanizing trip, but the journal is devoted mostly to the general aspects of the country and to experiences with more or less hospitable humans and woods that were always hospitable. The book will be warmly welcomed, because it is interesting in itself as well as in the light it throws on the development of the great naturalist's aims. **The journal has been skilfully edited by Prof. William F. Badè, who did a like service for Muir's "Travels in Alaska."**

Illustrated. Large cr. 8vo, $2.50 net. Also a large paper edition of 550 copies, of which 500 are for sale. Price, $5.00 net.

ON ALPINE HEIGHTS AND BRITISH CRAGS

By GEORGE D. ABRAHAM

"One of the most fascinating books of mountaineering I have ever read. It ranks among the first half dozen books which would be missed from any real mountaineer's library."—*William Frederic Badè, editor of The Sierra Club Bulletin and one of the directors of the Sierra Club.*

24 illustrations. $2.50 net.

BIRD FRIENDS

By GILBERT H. TRAFTON

For the nature lover no gift could be more appropriate than this beautiful volume, which tells everything about birds that anyone, even a special student, would want to know. Profusely illustrated in color. $2 *net.*

THE STORY OF SCOTCH

By ENOS A. MILLS

"Not even Rab or Stickeen lays a stronger hold on the reader's affections than the faithful and intelligent dog Scotch, whose tragic history is told in this book."—*The Dial.*

Illustrated. 50 cents net.

HOUGHTON MIFFLIN COMPANY

BOSTON ***NEW YORK***

Huntington Lake and the Grand Canyon of the San Joaquin

CALIFORNIA'S great scenic attraction. Do not fail to see beautiful Huntington Lake, surrounded by its snow-clad mountain peaks and the Grand Cañon of the San Joaquin, with its massive walls and domes, stupendous waterfalls. It's a galaxy unsurpassed elsewhere. Only a few hours from Los Angeles and San Francisco—either Southern Pacific Company or Santa Fe Railroad to Cascada, thence by auto service to the Lake. Good Hotel service at Huntington Lodge. Descriptive folders on application. For through tickets and connections see Southern Pacific and Santa Fe Railroad ticket agents, or address:

San Joaquin & Eastern R. R. Company

736 P. E. Building Los Angeles, Cal.

Goldberg, Bowen & Co.

Wholesale and Retail

Grocers

TEA, COFFEE AND WINE MERCHANTS

Established 1850

We carry everything for the camping trip, such as condensed soups, potted meats, beef extracts and delicacies of all kinds.

We take great pains to pack according to instructions left, and try to please in every way.

When you are far away you want fresh goods of the best quality, and they must be packed properly.

Main Store and Shipping Depot

242 SUTTER STREET SAN FRANCISCO, CAL.

HIKING OUTFITS
SLEEPING BAGS
RUCKSACKS
TENTS
CAMP SUPPLIES
EASTMAN KODAKS AND SUPPLIES

THE
Spiro
COMPANY

307-309-311 Market Street.
SAN FRANCISCO

PURVEYORS TO THE
Lovers of the Outdoor Life

The Camper, Hiker, Autoist and Sportsman can find in our varied stock all the necessaries that add comfort to the body, the camp or the trip en route

Army and Navy Goods

SOLE DISTRIBUTORS

The regulation U. S. Army Tramping Shoes
" " U. S. Olive Drab Shirts
" " U. S. Olive Drab Blankets

U. S. Knapsacks, Shelter Tents, Ponchos and many of the other useful articles required in the U. S. Army and Navy Service

ILLUSTRATED CATALOGUE FREE

BRANCH STORE, 1026 BROADWAY, OAKLAND

SIERRA CLUB
402 MILLS BUILDING : SAN FRANCISCO

hsonian Institution
AY 2 1919
National Museum

ANNOUNCEMENT
EIGHTEENTH ANNUAL OUTING OF THE SIERRA CLUB
JULY 11th TO AUGUST 10th, 1919

THE outing for this summer will be taken to the Tuolumne Meadows, through Yosemite, with main trips to Mt. Ritter region, Thousand Island Lake, Shadow Lake, Devils Post Pile, Rainbow Falls and during the last week to Ten Lake Basin and vicinity.

This will make the trip interesting to those who have visited the Meadows on previous occasions. **Persons desiring to take this outing should notify the Secretary in writing at once so as to aid in the preparations.**

The region about Mt. Ritter is one of the most striking and spectacular from the standpoint of mountaineering in the Sierra, while Ten Lake Basin contains one of the most exquisite groups of lakes that are to be found in the whole range. In all probability a knapsack party will go down the Tuolumne Cañon to Pate Valley and rejoin the main party in Ten Lake Basin.

MAPS

A folding map of the entire Yosemite National Park can be secured of the Director of the U. S. Geological Survey, Washington, D. C., or from Isaac Upham Co., 510 Market St., San Francisco.

LITERATURE

For literature on this trip members are referred to back numbers of the "Sierra Club Bulletin," which can be read at the Club Rooms and several local public libraries.

See also "My First Summer in the Sierra," and "The Yosemite," by John Muir.

For a very good description of Mt. Ritter and Ten Lake Basin, see "The Mountains of California," by John Muir, pp. 53-73 and p. 100.

PERSONNEL

This outing is intended for members of the Club and their relatives. Members of other mountaineering clubs are also welcome. Friends of members, properly recommended, may also join the outing on payment of $5 as an enrollment fee.

ITINERARY

The main party will leave San Francisco and Los Angeles in special **Sierra Club** Pullman cars attached to regular trains, Friday evening, July 11th, and will arrive at the **Sierra Club** camp in Yosemite the afternoon of the 12th. The party will remain in Yosemite one day and the morning of July 14th will start for Tuolumne Meadows via Mirror Lake Trail and will camp the first night near Lake Tenaya. They will reach the Soda Springs camp in Tuolumne Meadows on July 15th and from this central camp trips will be taken down the Grand Cañon of the Tuolumne, and climbs of Mts. Hoffman, Conness, Dana, Lyell and Ritter will be made. There is a vast wilderness to explore and no region in the Sierra is more attractive. Those who prefer may stay at the base camp in the Meadows and enjoy the splendid trout fishing (be sure and get your State fishing licenses before you start) or take the numberless interesting one-day trips to nearby lakes and peaks.

The party will return via Ten Lake Basin and Yosemite Creek, leaving Yosemite the afternoon of August 9th and arriving in San Francisco and Los Angeles the morning of August 10th.

TWO WEEKS PARTY

This party will leave San Francisco and Los Angeles on the regular trains the evening of July 25th, arriving in Yosemite the 26th, staying at any of the regular camps that night. The pack train will be at the Le Conte Memorial Lodge the morning of the 27th and the members of the party should see that their dunnage bags are at the Lodge by 7 o'clock a. m. at the latest. Each of the regular camps will, upon request, see that the bags are delivered. Information can be obtained at the Lodge the evening before or the morning of the 27th.

OUTING DEPOSIT

The Outing Deposit will be $65.00 for the main trip of four weeks, or $40.00 for two weeks. The increase in price is rendered necessary by the great advance in cost of provisions and all material used on the trip.

Since the provisions and outfit must be purchased for cash, and will have to be forwarded several weeks prior to the main start, it will be necessary for each person who desires to take this trip to send the Secretary of the Sierra Club the deposit of $65.00 for the main trip or $40.00 for two weeks to cover the expense, so as to reach him **not later than the 24th of May.** Send amount by check, money or express order, and payable to the Secretary of the Sierra Club.

The deposit will in all probability, cover all Club expenses so that no further assessment need be made.

Since a large outlay will have to be made several weeks in advance, the deposits of those who find themselves unable to join the Outing will be refunded only in case their places are filled by the Committee from those who make subsequent application or in case any balance remains after paying all Outing expenses, though there has been in the past no difficulty in refunding, at least, the major portion of the deposit.

DUNNAGE BAGS

No personal baggage will be accepted for transportation on the pack-train unless packed in dunnage bags of dimensions and shapes as follows: Cylindrical canvas bags not to exceed, when packed, three feet in length and eighteen inches in diameter, plainly marked with the names and home addresses of their respective owners. These should be painted on the bags in large letters. Each person is allowed one bag only.

Weight of each individual's personal baggage when packed in bag is not to exceed thirty-five pounds.

SADDLE HORSES

A few saddle horses will be available for use. The charge per animal for the entire trip, including its care, will probably be $45.00. The Club assumes no responsibility of any sort for these, but has consented to their use by members of the party who may wish to ride. If you wish to engage an animal for the trip, let us know **at once** and one will be ordered for you.

PERSONAL OUTFIT

Each member of the party must provide his own personal effects.

THE ESSENTIALS

1. Sleeping Outfit. This should consist of a sleeping bag made by doubling two wool comforters, so as to give the bag the greatest length, and sewing securely together across the bottom and two-thirds of the way up the side. This bag should be lined and covered with gingham or sateen, which should project a foot or two beyond the top as a loose flap. The wool comforters may be sewed up into separate bags as indicated, and one lined and the other covered. One bag can then be slipped inside the other for ordinary use and removed easily for knapsack trips where economy of weight is desirable. A tall person will require extra length comforters. Blankets are too heavy and cotton comforters are not desirable.

A waterproof sheet or covering at least 6 x 6 feet should also be taken. Canvas and the ordinary rubber blanket are entirely too heavy for this purpose. The most serviceable and satisfactory material is waterproof silk. It is strong, durable, perfectly waterproof, and very light. A piece five yards in length, cut in half and sewed together along one side, will make a large sheet that will protect the sleeping bag from the ground and form a covering as well. Firms who advertise at the end of this announcement carry this very desirable material and will fill orders by mail.

2. A tramping suit of stout material—corduroy, denim, khaki, etc. One suit should suffice

for the entire trip. Men should have an extra pair of khaki trousers or overalls, and an extra light-weight flannel overshirt. Overcoats are not taken, but each one should have a sweater. If a coat is worn it should be made of khaki or some light-weight material. Women should have an extra, light-weight skirt and waist to wear about camp. The skirts, especially the tramping skirt, should be short and should reach not many inches below the knee. Under the skirt shorter knickerbockers of the same color should be worn. These latter are essential for the more difficult mountain climbs where skirts are dangerous to wear.

3. The underclothing should be such as one would wear in average winter weather in California—i. e., of medium weight, and one change should be taken.

One of the Chinamen provided by the management will probably be able to do washing at reasonable rates for those who may desire it while in permanent camp.

4. Footwear is an all-important question. One pair, at least, of stout, well-fitting, easy-wearing shoes, with extra heavy soles containing hob-nails, is essential for tramping. These should be thoroughly broken in before the Outing. The wear and tear on footwear on these trips is very great, and novices have frequently had their trips nearly spoiled by underestimating the necessity for stout shoes. A light pair of shoes to wear about the camp after the day's tramp will be conducive to

comfort, such as tennis shoes or moccasins.

5. Leggings are recommended unless high boots are worn, and women will find them desirable for wearing about camp with light shoes.

6. Several pairs of moderately heavy and serviceable socks or stockings should be taken. Experience has proven that if two pairs of medium weight woolen socks are worn (or a single pair of extra heavy weight) the feet will not suffer from chafing and blistering. Women will find a pair of stockings and a pair of boy's size woolen socks to serve the same purpose, and this plan is highly recommended by women who have done a great deal of tramping in the mountains. Chamois skin heel protectors or Johnson's zinc oxide-adhesive plaster applied in strips also serve as a protection against chafing, and each member of the party should be provided with a five-yard roll of 1-inch tape and a small package of cotton.

7. Any sort of light broad-brimmed hat can be worn. Large blanket safety pins have been found desirable to use in place of hat pins by the women.

8. Toilet articles, soap and towels.

9. A very fine mesh mosquito head-net and heavy gloves, preferably gauntlet, are necessary.

10. For those who desire to climb mountains, colored glasses or goggles are essential. Women should also carry heavy, dark veils to protect the face from snow-burn and actor's grease paint is one of the best protections.

11. It is essential that each member of the party, unless provided with large pockets, take a small lunch-bag with shoulder-strap for use on daily trips.

12. Canteen, drinking cup, and bathing-suit are desirable articles, though not absolute necessities.

13. Tents are not essential and are seldom used to sleep in. Several women may combine and take a tent, using it as a dressing-room. A light weight 7 x 7 A-tent, with ridge rope, without poles or pins, or any other form of small tent, is recommended. This tent must be included in the prescribed limit and must be packed in the three-foot dunnage bag, unless ordered of the Secretary of the Club before May 20th, in which event it will be sent in with the Club tents. Such order must be accompanied with $5.00 to cover rental and cost of transportation.

A piece of dark-green percaline or silesia cloth, about six feet in width and 20 feet in length, strung up as an enclosure with heavy cord is an admirable substitute for a dressing-tent, and weighs but 2½ pounds. Several women can combine and take one of these.

14. A pocket roll facilitates the care and packing of one's effects. It should be made of denim or drilling, as follows: A piece three feet square is first taken as a back, and three box-plaited pockets, each of a foot deep, and one above the other and extending the entire width, are securely sewed to the back and

bound with tape. The upper pocket can be divided into three divisions to hold small articles. All these pockets can be closed with flaps or tied with tapes. Into this roll all one's belongings except bedding can be packed, and it can be arranged with eyelet and cord and hung to a tree when in camp.

15. Dunnage bag three feet long and eighteen inches in diameter when packed. Each member must have a bag of this character, and these dimensions must not be exceeded. The carrying of this bag from place to place while in camp will be facilitated by having canvas handles riveted or sewed on bottom and side of bag. **The owner's name and home address in full must be painted on each bag in large letters, and each bag must be tagged with the special Sierra Club tag.**

16. For those purposing to take arduous side-trips, a durable knapsack or pack harness is necessary.

17. It will be desirable to have two or three candles, and if each one will bring a small Chinese lantern the display will add to the attractiveness of the camp-fires.

To properly pack one's outfit, the bedding should be laid on the ground, extended full length and folded so as not to be more than three feet in width. On one end of the bedding lay the packed pocket roll and then roll it up inside of the bedding. Fasten the entire roll with a stout cord or straps and pull the dunnage bag over it.

CHECK LIST AND WEIGHTS
PERSONAL OUTFIT

IN order that members of the party may have a more definite idea of what to take and the approximate weights of the various articles, the following list has been carefully compiled:

Sleeping bag—		Lbs.	Ozs.
Wool comfort or eiderdown bag		8	0
Sheet of waterproof silk, 6 x 7 ft.		1	10
Total		9	10
Clothing in addition to what is worn—			
Sweater		1	8
Pajamas or nightgown		0	14
1 suit underclothing		1	2
Light pair shoes		2	0
6 bandanas		0	8
Men	Women		
1 pair trousers	1 skirt	1	8
1 overshirt	1 waist	0	10
6 pair socks	6 pair stockings	1	0
Total		9	2
Miscellaneous—			
Toilet articles		2	0
Towels—1 bath, 2 face		1	4
Knapsack or pack harness		1	6
Pocket roll (denim)		1	2
Dunnage bag		2	0
Candles and lantern		0	8
Total		8	4

This is a liberal allowance and makes a grand total of about 27 pounds, leaving a small balance for cloth enclosure, fishing tackle, writing and sewing outfit, etc.

Keep the weight as much below the prescribed limit as possible.

RAILROAD AND OTHER EXPENSES

The expense of the trip will be as follows:

For those leaving San Francisco:

(1) Outing deposit (4 weeks)	$65.00
(2) Round-trip fare, San Francisco to Yosemite	21.60
(3) Pullman berth ($2.20 each way, lower)	4.40
(4) Meals enroute	2.00
Total	~~$78.00~~

Los Angeles members will pay $35.10 for their round-trip tickets and the Pullman fare is the same as from San Francisco: $2.20 lower, $1.76 upper, each way.

Mr. Phil S. Bernays, 315 W. Third Street, Los Angeles, will give the members from southern California necessary information.

Mail addressed care Sierra Club, Yosemite, Cal., will be brought to the party, and mail will be sent out at frequent intervals and a telephone in the Parsons Memorial Lodge in the Meadows will enable anyone to keep in touch with outside affairs.

OUTING COMMITTEE,
Per WM. E. COLBY,
Chairman.

Sierra Club, 402 Mills Building, San Francisco.

ADVERTISERS IN SIERRA CLUB BULLETIN

OUTING EQUIPMENT

THE ELLERY ARMS COMPANY
583-585 Market St., San Francisco
Outing Equipment

H. C. GOLCHER CO.
508 Market St., San Francisco
Outing Equipment

W. A. PLUMMER MFG. COMPANY
Pine and Front Sts., San Francisco
Tents and Canvas Goods

A. G. SPALDING & BROS.
156 Geary St., San Francisco
416 14th St., Oakland
Outing Equipment

THE SPIRO COMPANY
307-309-311 Market St., San Francisco
1127 Broadway, Oakland
Outing Equipment

DEHYDRATED VEGETABLES

All the Vegetables used by the Sierra Club on their outings are put up by

E. CLEMENS HORST CO.
235 Pine St., San Francisco

PHOTOGRAPHIC SUPPLIES

GEO. H. & HENRY KAHN
34 Kearny St., San Francisco
Kodaks Pedometers Field Glasses

MARSH & COMPANY
712 Market St., San Francisco
Kodaks and Photo Supplies

W. DAVIS & SONS
333 Market St., San Francisco
Outing Equipment
Knapsacks, Blankets, Shoes, Etc.

GROCERIES

GOLDBERG, BOWEN & CO.
242 Sutter St., San Francisco

INSURANCE

WILLIAM T. GOLDSBOROUGH
234 Bush Street, San Francisco
Insurance of All Kinds

BOOKS

HOUGHTON MIFFLIN COMPANY
4 Park St., Boston, Mass.
Books of Interest to Sierra Club Members

EMBLEMS

SIERRA
CLUB

OUR CLUB PIN,
above size, in oxidized silver or
antique bronze, $1.00.
In 14k rose gold, $2.50.

For sale at Club office,
402 Mills Building, San Francisco
and by
Mr. P. S. Bernays, 315 W. 3rd St.,
Los Angeles, Cal.

HELP TO PREVENT FOREST FIRES

EVERY traveler or camper in forest regions is urged to take the greatest precaution against the starting of forest fires. A match, cigarette or cigarstub tossed thoughtlessly away, a camp-fire left smouldering, may cause injury and distress beyond calculation.

Precautions with small fires will prevent big ones. All that is required is exercise of the same care with fire in forest regions that one takes without question in his own home or in a city. Before you leave a camp-fire, even for a short time, be sure it is **out.** The law requires it, and imposes a heavy penalty on anyone leaving a fire that is not absolutely put out. Notify the nearest U. S. Forest Ranger or State Fire Warden of any forest fire you see or hear of.

Also aid wherever possible in the preservation of wild life and discourage the wasteful gathering of wild flowers.

PLEASE OBSERVE ALL THE RULES
OF THE PARK.

SIERRA CLUB
402 MILLS BUILDING
SAN FRANCISCO

HORST'S

Evaporated Vegetables

Perfected Process

Food value, flavor and texture unimpaired.
Great saving in weight and space.

IDEAL FOR CAMPING

Fresh or canned vegetables weigh from ten to twenty times that of HORST'S EVAPORATED.

As good as fresh vegetables—and better than canned.
Sold only in sealed tins—absolutely weatherproof.

At sporting goods stores and groceries.

E. CLEMENS HORST COMPANY
235 PINE STREET · SAN FRANCISCO

ON A HIKE—*You Will Need*

A Kodak IT WILL SERVE YOU FOR DELIGHTFUL RECOLLECTIONS OF EVERY TRIP

A Pedometer WILL INSTANTLY TELL YOU HOW FAR YOU HAVE WALKED

A Field Glass WILL DOUBLE THE PLEASURE OF THE HIKE

We Also Do Developing and Printing
THE QUALITY KIND—FOR THE ONE WHO KNOWS

GEO. H. & HENRY KAHN & CO.
Opticians & Photo Supplies
54 GEARY ST. and 590 MARKET ST., SAN FRANCISCO

The
Ellery Arms
Company
583-85 MARKET ST
SAN FRANCISCO, CAL
THE SIGN OF QUALITY

The "Been There"

Outing Goods Store

Devoted exclusively to the needs of sportsmen and sportswomen—with 38 years of progressive camp experience to assist

OUR SUITS ARE IN EXCLUSIVE STYLES
Fashioned with "character" from standard government grade khaki to the famous auto woolen—appropriate, practical and fairly priced

ELLERY HIKING BOOTS GIVE GENUINE COMFORT
They also are of our own creation, possessing leather, shape and construction which have made them "standard" to the royalty of the trail

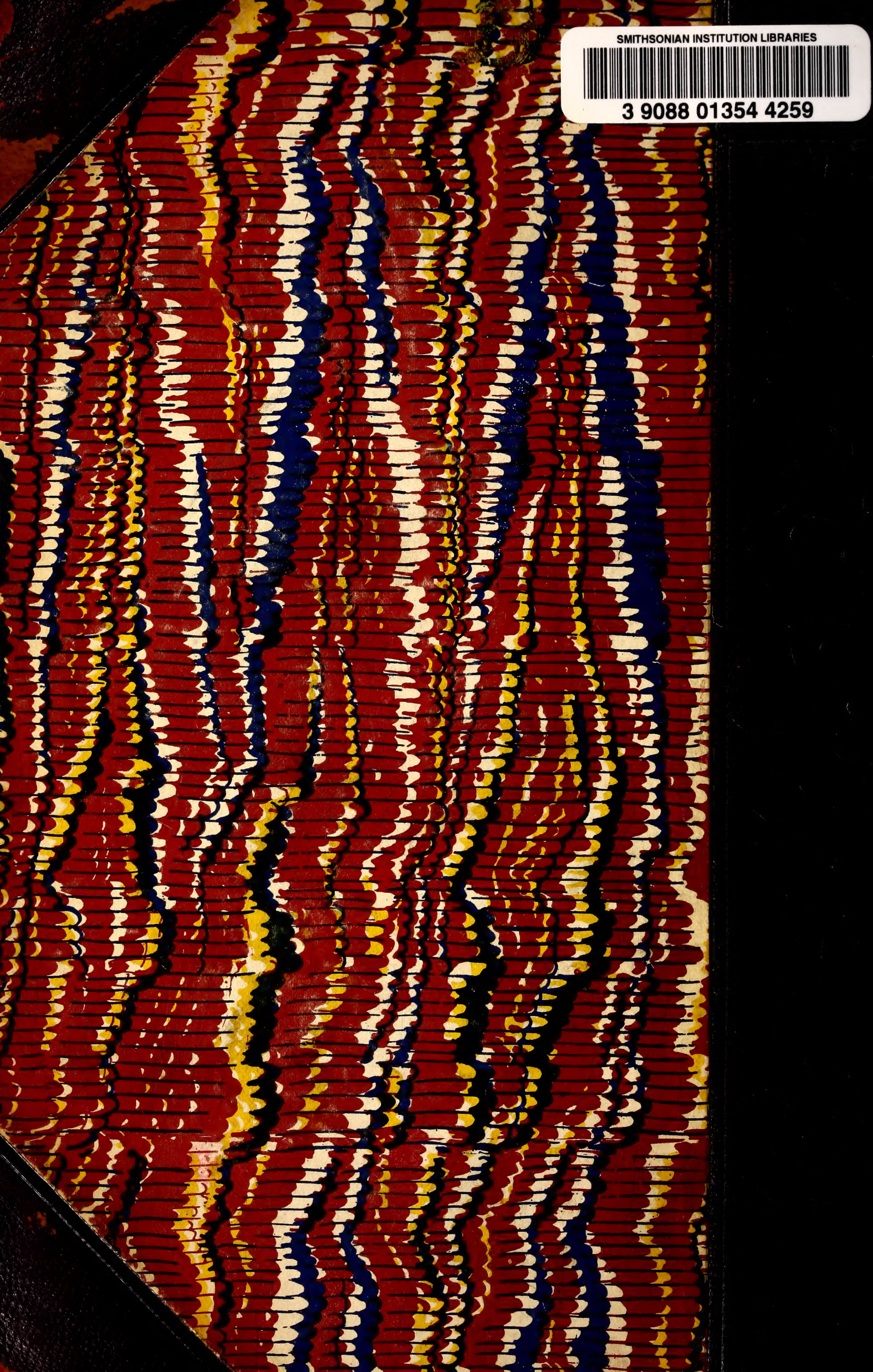
LEARN WHAT ELLERY QUALITY, SERVICE AND PRICE MEANS
Impossible to enumerate the hundreds of seasonable articles that cannot be bought elsewhere, so we invite your inspection, with the reminder that attention to detail has made our establishment

The Largest Outing Supply House in America

☞ Complete outing goods catalogue sent free on request ☜

Ellery-Made
MEANS QUALITY

PRINTED BY TAYLOR & TAYLOR, SAN FRANCISCO



SMITHSONIAN INSTITUTION LIBRARIES

3 9088 01354 4259